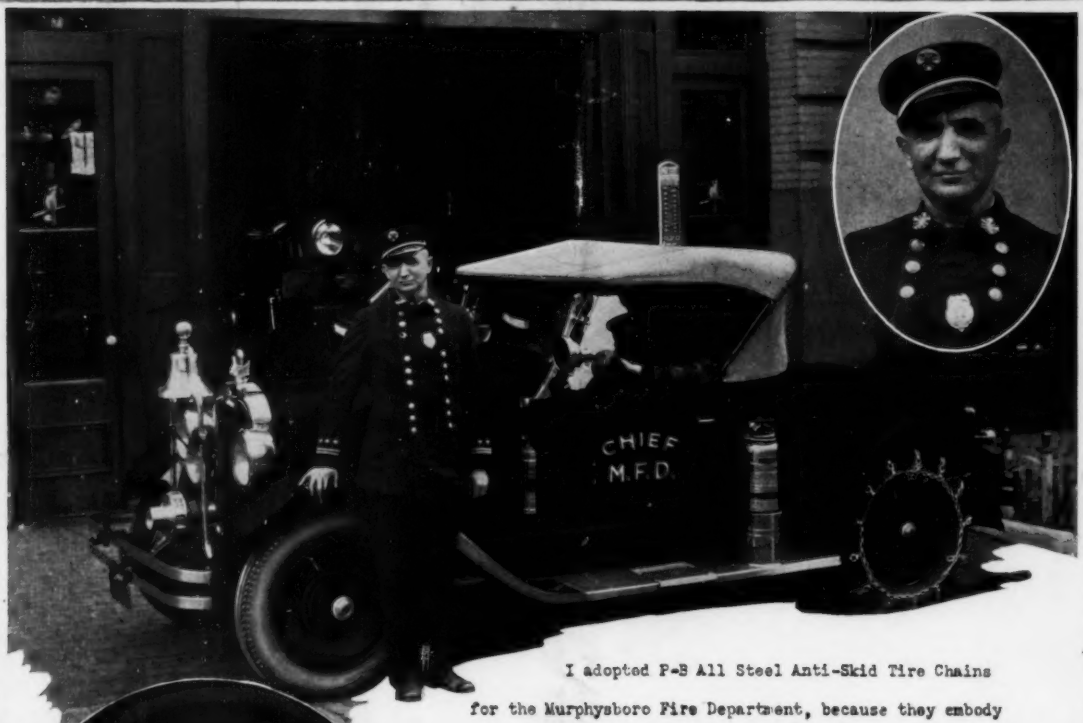
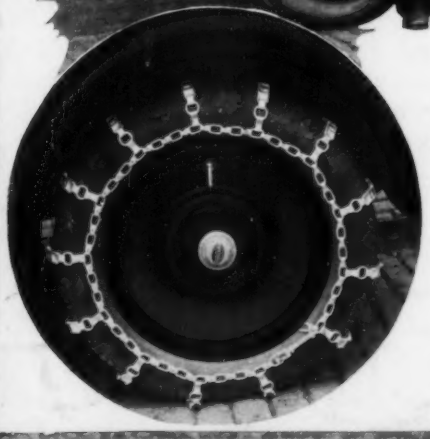
RECEIVED
JAN 1 - 1928
O. S. U. LIBRARY

FIRE ENGINEERING

A consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

DECEMBER 28, 1927





I adopted P-B All Steel Anti-Skid Tire Chains for the Murphysboro Fire Department, because they embody those features that overcome weather elements, preventing accidents and loss of life, as well as assurance of safe transportation to all fires.

I suggest, in the name of safety, that you write the P-B Mfg. Co., 4221 Forest Park Ave., St. Louis, Mo., for full details.

Yours truly,
Albert Hamm
Chief of Fire Department
Murphysboro, Illinois.

The Most Powerful Apparatus Siren Made

Sterling BIG CHIEF

This Super-Power Apparatus Siren has approximately five times the capacity of the largest standard apparatus Siren made. Warns traffic many blocks in advance, assuring safety and speed to apparatus. Unit-built, most rugged construction, attractive appearance. Thoroughly weather proof. Write for circular No. 625.

STERLING SIREN FIRE ALARM CO.
61 Allen St., Rochester, N. Y.

STERLING

12 *years in service* —

more efficient than ever!

FIRE DEPARTMENT

BOARD OF FIRE MASTERS
J. W. FRAMPTON, CHAIRMAN
J. G. BOSCHER, VICE-CHAIRMAN
E. E. WEHMANN, SECRETARY
H. P. WILLIAMS, FIRE MASTER
F. W. ROBERTSON,
D. E. PATTERSON,
R. C. HEFFRON,
E. L. MACK,
THOS. P. STONEY, MAYOR

L. BEHRENS, CHIEF
H. R. LEWIS, 1ST ASSISTANT
J. H. WOHLERS, 2ND ASSISTANT
W. F. CASEY, 3RD ASSISTANT

CHARLESTON, S. C. November 11th, 1927

The Seagrave Corporation,
Columbus, Ohio.

Gentlemen:

The following is a test conducted by the Charleston Fire Department at Custom House Dock lifting salt water about eight feet with the City's twelve year old Seagrave 1000 gallon Pumper, during annual test.

TEST NO. 1 - 3 lines of hose into Deluge Set using 2" tip, an engine pressure of 120 pounds was developed, the nozzle pressure was 75 pounds, the delivery 1029 gallons per minute.

TEST NO. 2 - Bearing out my contention that the Seagrave Centrifugal Pumper does take full advantage of hydrant pressure at normal motor speed, the above mentioned Pumper was then taken to a hydrant located at the corner of Guignard and Anson streets where it made the following showing:

Using 4 lines of hose with 3 lines into Deluge Set with 2" tip and 1 line of hose with 1¼" tip, the pump developed 100 pounds pressure. The nozzle pressure at the 2" tip was 50 pounds and the delivery was 841 gallons. The nozzle pressure on the 1¼" tip was 75 pounds, and the delivery was 578 gallons. The total delivery of the two streams during this test was 1419 gallons per minute.

Due to the tremendous volume of water pumped from the main, the static pressure of the hydrant was reduced from 50 pounds to 15 pounds flowing pressure at pump inlet while pumping.

Without previous plan or practice the Seagrave Pumper was taken directly from service at Station No. 2 for the test. It was operated by H.L. Myers Department Engineer of Pump Company No. 2. The tests were witnessed by Asst. Chief J.H. Wohlers, Supervising Engineer H. J. Hemmingsen, and myself.

The above test proved the consistency of the Seagrave Corporation's contention that the older a Seagrave Centrifugal Pumper becomes, the greater the amount of water that can be delivered.

Very truly yours,
(Signed) *Louis Behrens*
Chief Fire Department
Charleston, South Carolina.

THE NEWS AND

Charleston Firemen Begin Pumping Apparatus Tests

City's Seven Active and Six Reserve Fire-fighting Pumpers to Be Put Through Paces at Colonial Lake

you see a fire-engine throwing hundreds of gallons of water into Colonial Lake today or within the next few days, don't think the firemen have gone crazy—it's only their annual test period for the pumping apparatus.

It looks like carrying coals to Newcastle, [illegible] water

which bore out a prophecy made by Chief Behrens when the machine was bought in 1915.

In a statement published in The News and Courier of September 17, 1915, he said: "As to the durability and usefulness of the centrifugal pump, I see no reason why it should not be as efficient a number of years hence as when it was first built." The capacity of the pump which he referred is listed at 1000 gallons a minute, and it showed almost a 50 per cent excess twelve years after purchase.

Chief Behrens' instructions to the operators of the engines, headed by Martin J. Hemmingsen, chief engineer, in regard to the motor apparatus, are to see that the pumping motors are in tip-top condition, enabling the pumps to keep two streams going under pressure for hard work.

As to the steamers, he has four questions which have to be answered in the affirmative: "Are the pump valves, plungers, and water connections in good working order, and devoid of excess slip? Can the engine go through very hard work without heating any bearing or straining any bolts or joints? Does the engine utilize steam efficiently" in the firing and carrying of water carefully handled by the engineer and his assistants?

MOTOR PUMPER MAKES RECORD

Fire Department Engine Improves With Age, as Chief Predicted

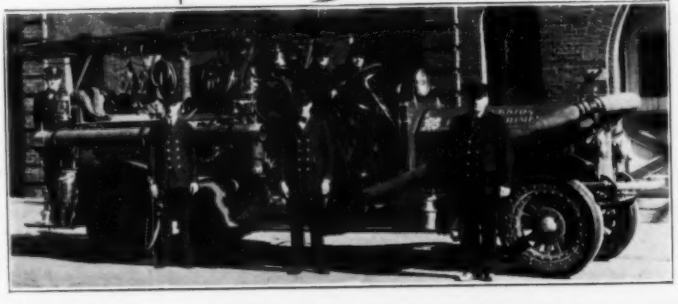
A prediction made by Fire Chief Louis Behrens more than 12 years ago that the centrifugal pump would increase its capacity by age has been sustained. The truth of this was demonstrated during the current annual tests which end this week, when the centrifugal Seagrave pumper was given an official test.

The centrifugal pumper during this test delivered 1419 gallons of water a minute through four hose lines. This is a most unusual record, states Chief Behrens, and Mr. Easterling was greatly elated by the performance of the pump. The test was held at Guignard and Anson streets and the apparatus was handled by H. L. Myers, engineer of Fire Company No. 2, and was witnessed, besides Chief Behrens and Mr. Easterling, by Assistant Chief Wohlers and M. J. Hemmingsen, supervising engineer of the local department.

Mr. Easterling stated that while the centrifugal pumper had increased its capacity per minute since its purchase in September, 1915, by the city of Charleston, the mechanical condition in which the apparatus had been kept had much to do with the remarkable volume of water the pumper displayed of in 60 seconds.

The test in detail shows that four lines were used, three being on one two-inch tip and the fourth on a 1 1-2-inch tip with 100-pound pump pressure developing 75 pounds pressure at the nozzle of the two-inch tip for an average of 841 gallons a minute and at the 1 1-2-inch tip 75 pounds pressure was developed for an average of 578 gallons of water a minute, or a total simultaneous delivery of 1,419 gallons a minute.

When the centrifugal pumper was bought in 1915 Chief Behrens expressed it as his opinion at the first test that the pumper would increase its capacity as it got older in service, basing his remarks on the manner of construction, citing that such pumps have no wearing parts, no by-pass and no relief valve.



This letter, and these clippings from Charleston, S. C., newspapers, tell their own story. It is a story of Seagrave service and dependability. The Seagrave Pumper used in this test was purchased by the city of Charleston in 1915 and has been in constant service.

The SEAGRAVE Corporation

COLUMBUS, OHIO

Branch Offices At:

Boston, Mass.
Seattle, Wash.
San Francisco, Cal.
Birmingham, Ala.
Chicago, Ill.
Dallas, Texas
Pittsburgh, Pa.
New Haven, Conn.
Philadelphia, Pa.
Los Angeles, Cal.
Kansas City, Mo.

The Journal of the Fire Protection Profession Since 1877

MEMBER
Audit Bureau of Circulations
Assoc. Business Papers, Inc.

FIRE ENGINEERING

A consolidation of FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

Published Every Other Wednesday

SUBSCRIPTION PRICE
U. S. $3 a year; Canada $3.50
Foreign $4; Single copies, 25c.

Issued at Lyon Block, Albany, N. Y.
by CASE-SHEPPERD-MANN PUBLISHING CORP.
Also publishers of "Water Works Engineering," Technical Books, etc.

Executive, Editorial, Advertising and Subscription Offices, 225 West 34th Street, New York City
All communications, including Editorial, Advertising and Subscription, can be directed to either of the above addresses.

KARL M. MANN
President and Advertising Director

FRED SHEPPERD
Managing Editor

I. HERBERT CASE
Vice-Pres. and General Manager

H. S. ESSEX, Advertising Manager; ROBERT H. LOCKWOOD, Editor; N. N. WOLPERT, Asst. Editor

HAROLD T. MURRAY, Western Manager, 30 N. Michigan Ave., Chicago, Ill. Telephone: Franklin 0138

EDITORIAL ADVISORY BOARD

JOHN KENLON
Chief, New York Fire Dept., Founder of New York Fire College

JOHN C. MORAN
Chief, Fire Department Hartford, Conn.

GEO. J. KUSS
Former Deputy Chief N. Y. F. D.; Lecturer on Fire Fighting, Delehanty Institute, N. Y.

A. A. BELL
Chief of Fire Brigades and Engineer "America Fore" Group of Fire Insurance Cos.

Happy New Year!

AGAIN we are at the dawn of a new year, with its 365 days of opportunity and its 26 bi-weekly issues of FIRE ENGINEERING.

¶ No, hold on a bit while we correct our error: it is Leap Year and 1928 will have 366 days for you to enjoy. Let's use that extra day in doing something particularly worth-while to boost the cause of fire prevention and fire protection, in which we all have such a keen interest! Suggestions are in order.

¶ Meanwhile may we take this opportunity to wish you all a very happy and prosperous year? Yes, sir! Many of 'em!

The Publishers

CONTENTS

DECEMBER 28, 1927

VOL. LXXX No. 26

Removing the Hazard of Dust Explosions, by David J. Price (Portrait) **1311**
Progress of Knowledge of Subject—Precautionary Measures to be Taken.

What Can We Do to Prevent Arson?, by W. A. Groce. **1313**
Importance of Immediate and Careful Investigation.

Poor Housekeeping—Planing Mill Burns (Illustrated). **1315**
Accumulation of Shavings Gives Fire Good Start.

With the Editor **1319**
Comments on Current Events and Live Topics by Our Editorial Staff.

Questions and Answers **1321**
Replies to Questions on All Manner of Subjects of Fire Fighting and Fire Protection.

Recent Important Fires Specially Reported (Illustrated) **1323**
Great Loss of Life in Quebec Orphanage Fire—Burnings of Two Weeks.

Of Interest to Volunteer Fire Department (Illustrated) **1329**
Matters of Importance to Volunteer Firemen.

Fire Department Activities **1333**
Newsy Notes from All Over the Country with Matters Firemanic.

Fire Department Improvements **1334**
Record of Business Activities in the Fire Protection Field.

False Alarms **1336**
The Humorous Side of the Fire Protection Profession.

Contents of this issue copyrighted, 1927, by Case-Shepperd-Mann Publishing Corp., 225 W. 34th St., New York City
Entered as second class matter at the Post Office, Albany, N. Y., January 29, 1926, under the Act of March 3, 1879.

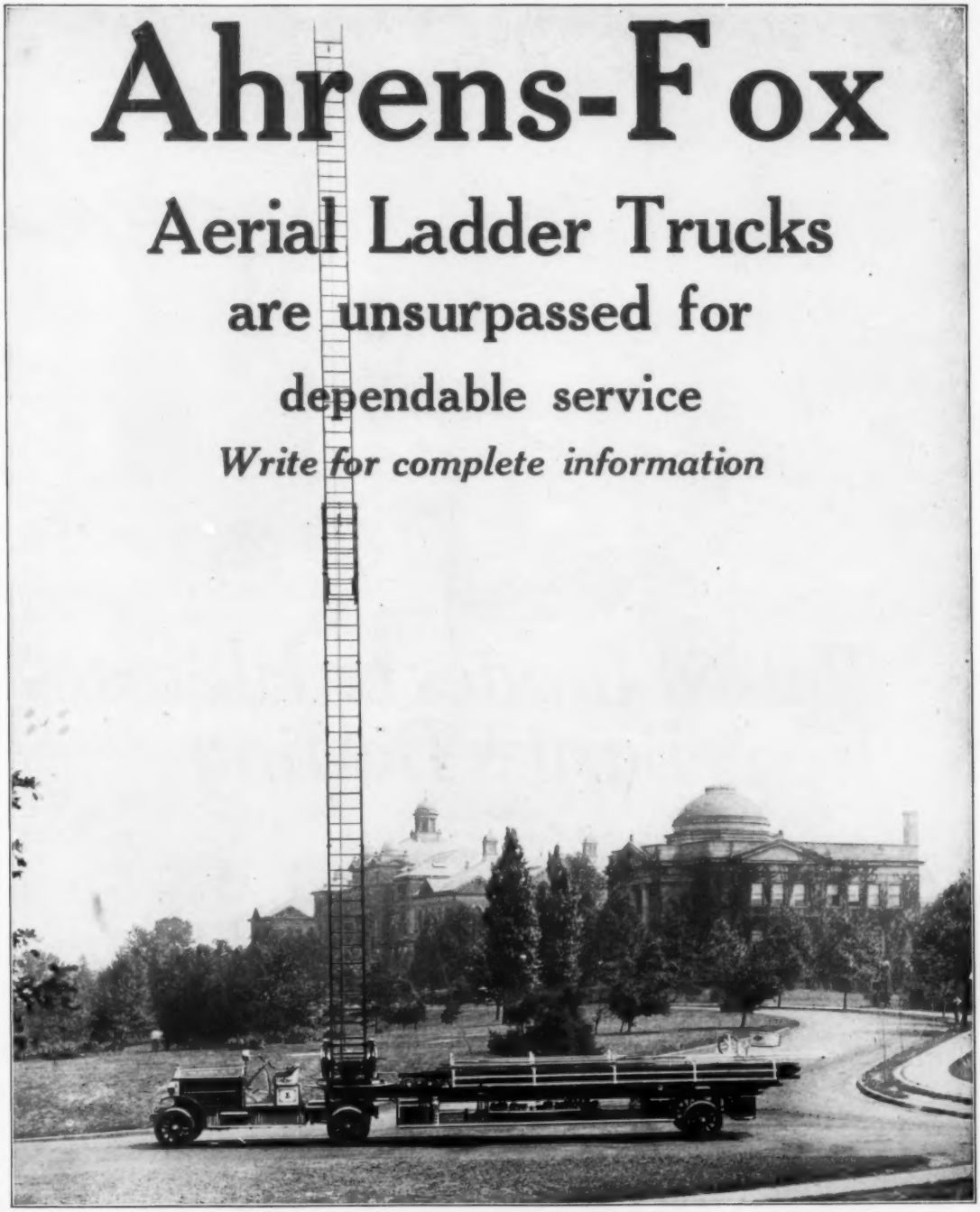
Ahrens-Fox

Aerial Ladder Trucks

are unsurpassed for

dependable service

Write for complete information



The Ahrens-Fox Fire Engine Co.

"Builders of Quality Fire Engines"

Cincinnati, Ohio

Eastern Representative	New England Representatives	Chicago Representative	Southwestern Representatives
J. A. PRESCOTT Fisk Bldg., New York	CARLOW AUTO CO., Taunton, Mass.	HENRY R. EARLY Hotel Woodmere, 4641 Woodlawn Ave.	PIONEER FIRE EQUIPMENT CO. 3600 Commerce St. Dallas, Texas

California Representatives, PACIFIC FIRE EXTINGUISHER CO., San Francisco, Cal.
Canadian Representatives, THE BICKLE FIRE ENGINE CO., Woodstock, Ontario
Pacific Northwest Representatives, A. G. LONG CO., Portland, Ore.

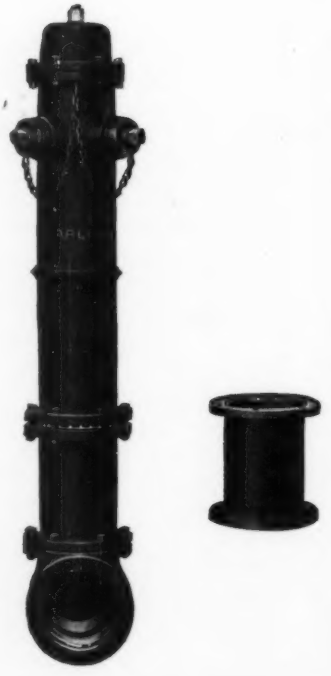
Raised Grades or Fill-ins Won't Bury a Darling

Sooner or later any progressive city is faced with the problem of raised street grades. So why not install Fire Hydrants now that may be quickly, easily and economically heightened to meet changing conditions?

A wrench and an extension section are all that are needed to change a Darling's height from six to sixty inches. Simply insert the Darling Extension Section of desired length between the base and lower barrel flange and the job is done. It isn't even necessary to use a longer stem, disconnect the base from the line, or remove the working parts.

New streets today may mean new levels a few years from now. Why not install Darling Fire Hydrants and eliminate the future possibility of the usual water system difficulties that accompany grading and filling?

Catalog gladly mailed upon request.



DARLING VALVE & MFG. COMPANY
Williamsport, Pa.

New York
Chicago

Oklahoma City
Houston

DARLING
FIRE HYDRANTS

Tough, upstanding Firefoam, which quickly controls the worst fires, is produced by Foamite Generator Powder *mixed with flowing water in the* Foamite *Foam Generator*

With this exclusive, patented single powder

the *Foamite* Foam Generator produces genuine Firefoam

ONE complete powder—instead of two that have to be mixed!

A single formula combining all the chemical elements required to produce Genuine fire-smothering Firefoam.

A powder that *will not deteriorate and will not cake.*

Sponsored by the same fire protection engineers who perfected the *Foamite* appliances now standard equipment with twelve hundred Fire Departments.

The unqualified success of the *Foamite* Foam Generator exclusively employing *Foamite* Generator Powder has naturally invited imitation. But no one can successfully imitate the patented formulas—nor the engineering experience—which make this apparatus unfailingly dependable in a fire crisis!

Details on request.

America-LaFrance & Foamite Corporation, 383 Turner St., Utica, N. Y. Successors to American La France Fire Engine Co., Inc., and Foamite-Childs Corporation.

The *Foamite* Foam Generator quickly connects into any hose line. One man can operate it—simply pouring *Foamite* Generator Powder into the hopper. Weighs only 70 pounds. Designed to carry on running board of apparatus

Foamite-Childs Protection

A Complete Engineering Service

Against Fire

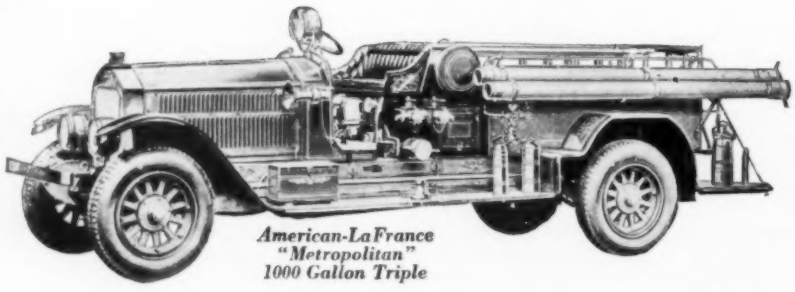
for 5 years nobody - - - anywhere has challenged this Record!

Views of American-LaFrance Pump Working at Anchorage, Alaska

Five years ago, at Anchorage, Alaska, an American-LaFrance Type "12," registered No. 3970, pumped continuously for thirteen days without a shutdown, except for the purpose of changing oil, maintaining a pressure of 200 lbs. for this period which is equivalent to driving the car 9,400 miles at full speed practically without interruption.

Five years have passed and still this record stands as the greatest pumping feat yet recorded in the fire apparatus field. Truly, this shows what an extraordinary performance it was.

Pumping requirements rarely make it necessary for a fire department to place it's apparatus under such strain as this Type "12" was under, but in every American-LaFrance fire apparatus there is a pump and a motor of exactly the same kind that established this record.



American-LaFrance "Metropolitan" 1000 Gallon Triple

AMERICAN-LAFRANCE & FOAMITE CORPORATION

Elmira, New York

BUT before real damage is done A.D.T. Sprinkler Supervisory Service detects the culprit's presence. Before freezing point is reached or when leaks develop from bursted pipes, the A.D.T. Automatic Supervisory Service discloses these dangers and you are immediately notified so that steps may be taken to prevent damage. A man created power of nature is used to defeat nature itself. We balk Jack Frost in efforts to cripple sprinkler systems and cause fire and water damage.

PROTECTION A.D.T. SERVICES

CONTROLLED COMPANIES

AMERICAN DISTRICT TELEGRAPH COMPANY

183 VARICK STREET . . . NEW YORK CITY

Is it *Northern*-Equipped?

(*a good question to ask*)

It will pay you to ask this question before purchasing fire-fighting equipment.

If the job has a Northern Rotary Pump the salesman will tell you, enthusiastically, about its superiorities. The records chalked up by Northerns—not only in fire-fighting, but in infinitely more trying industrial uses—give good cause for the enthusiasm.

Northerns are pumping oil, water, corn syrup, chemicals,—sometimes under conditions requiring continuous 24-hour a day performance. Throughout the industrial world, Northerns are doing things no other rotary pump has done, all of them more arduous tasks than will ever confront a fire pump.

This is your laboratory test for *dependability*. No guess work about it: if you want a dependable pump, make sure that the new motor apparatus is *Northern-Equipped*.

Thirteen major manufacturers of Fire Apparatus use the Northern Rotary Pump exclusively.

NORTHERN ROTARY PUMPS

"MORE GALLONS PER HORSE POWER"

NORTHERN FIRE APPARATUS CO.

900 — 18th Ave. N. E.

MINNEAPOLIS MINNESOTA

FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Journal of the Fire Protection Profession

VOLUME LXXX DECEMBER 28, 1927 NUMBER 26

Removing the Hazard of Dust Explosions

Cause of the Blast—Similar to Gas Explosion—Progress of Knowledge of Subject—Precautionary Measures to be Taken

By DAVID J. PRICE, Engineer-in-Charge, Chemical Engineering Div., U. S. Dept. of Agriculture *

WHEREVER dust occurs suspended in the air in large quantities there will be found the hazard of explosion and fire. Mr. Price has made a special study of the cause, conditions necessary to and the prevention of such explosions, and pronouncements by him on the subject are authoritative:

David J. Price

Attention to dust explosion prevention in the United States has been directed to (1) explosions in coal mines, (2) explosions in industrial plants and manufacturing establishments. In connection with the work that has been done by the Bureau of Chemistry of the U. S. Department of Agriculture it has been found that approximately 28,000 industrial plants in the United States alone are subject to the dust explosion hazard and therefore should adopt precautionary measures. These plants employ approximately 1,324,422 persons and manufacture products of an annual value in excess of $10,000,000,000.

The Bureau has obtained records of 300 dust explosions of this character. In 77 of these explosions 496 persons were killed, and in 105 explosions 875 were injured. In 161 cases the property loss amounted to $39,706,108, an average of nearly $247,000 for each explosion.

Occurrence of Dust Explosions

Dust explosions in industrial plants occur in various ways. Most of them naturally take place during the normal operating process, but others have happened under unusual conditions. In some instances explosions have taken place during the fighting of fires in the manufacturing establishments, resulting in the loss of the lives of firemen engaged in the performance of their duty. It is the purpose of this address to refer to certain phases of this work that relate to the protection of firemen in the fighting of fires in industrial establishments where explosive dusts are produced during the manufacturing processes and also to suggest precautionary measures that might be followed.

Dust Explosions Similar to Gas Explosions

It is now generally known that the behavior of a dust explosion is somewhat similar to a gas explosion. The dusts require definite ignition temperatures, and also have what might be termed the lower and upper limits of concentration. For instance, the lower limit of methane gas, CH_4, is 5.5 per cent, and the upper limit is approximately 14.5 per cent. The lower limit of concentration for hydrogen gas and air has been given as 4.1 per cent; the upper limit is as high as 72.4 per cent. The lower limit of carbon monoxide gas, CO, is approximately 12 per cent; the upper limit is about 72 per cent. Very little work has been done to determine the limits of concentration of explosive industrial dusts. In the tests made it has been found that ordinary corn starch dust can ignite with a mixture of approximately 0.007 ounces per cubic foot, or 7 ounces per thousand cubic feet.

Ignition Temperatures

The ignition temperature of methane gas, CH_4, ordinary mine gas, has been found to be approximately 650° C.; hydrogen gas, 580 C.; and carbon monoxide gas, 644° C. The ignition temperatures of a number of explosive dusts are about the same as the ignition temperatures of certain gases. For example, the ignition temperature of pulverized sugar is 540° C.; flour, 650° C.; and corn starch, 640° C. The rate of flame propagation of a mixture of hydrogen and oxygen has been found to be approximately 9,250 feet per second; a mixture of methane and oxygen, 7,600 feet per second; and a mixture of carbon monoxide and oxygen, 5,500 feet per second. In certain dusts the rate of flame propagation has ranged from 2,000 to 6,000 feet per second.

Ignition Sources

Pressures ranging from 270 pounds to 400 pounds per square inch have been measured in tests with certain kinds of dusts. A prominent chemist has estimated that if an ordinary sack of

* From an address delivered at the Fire Prevention School, Milwaukee Association of Commerce, Milwaukee, Wis.

"SINCE the ignition sources of explosive dusts are practically the same as those of explosive gases a readily accepted theory would be that any source which will ignite explosive gases will readily ignite explosive dusts. This would include matches, open flames, electric sparks, fires, and similar causes of ignition. The relative degree of fineness seems to be one of the principal factors to consider in determining the explosibility of dust."

flour could be diffused evenly in a room of 10 x 20 x 20 feet, or having a volume of 4,000 cubic feet, sufficient pressure would be produced to raise a weight of 2,500 tons a distance of 100 feet.

Since the ignition sources of explosive dusts are practically the same as those of explosive gases a readily accepted theory would be that any source which will ignite explosive gases will readily ignite explosive dusts. This would include matches, open flames, electric sparks, fires, and similar causes of ignition.

The relative degree of fineness seems to be one of the principal factors to consider in determining the explosibility of dust. It is believed that the degree of fineness determines the rate of flame propagation through the dust cloud.

Assuming this to be correct the industries in which fine dusts are produced during operating processes should recognize the hazard of dust explosions and adopt methods of control and prevention.

Records of Early Dust Explosions

Although the explosion in the Washburn Flour Mills in Minneapolis on May 2, 1878, has been referred to as the first disastrous dust explosion in the United States, records indicate that explosions of this character took place as early as 1860. An explosion of flour dust is reported as occurring in a warehouse in Turin, Italy, on December 14, 1785. The investigator, Count Morozzo, stated that the baker in the plant in which the explosion occurred had witnessed a similar explosion when he was a boy, probably 30 years earlier. This would establish the date of 1755 as the time of one of the earliest explosions of flour dust, which is at least 100 years before any recorded explosion of this type in the United States.

Progress in Knowledge of Dust Explosions

The explosion in the Washburn Flour Mills in Minneapolis, Minn., resulted in the loss of 18 lives and considerable property damage. It led to an exhaustive study on the part of the flour milling industry with the result that effective dust collecting systems were designed and installed in the flour mills in the United States and Canada. These systems have been instrumental in reducing the loss from dust explosions and fires, and have resulted in marked progress in their control. Although the first dust explosions were in flour mills, we find in more recent years that a larger number of explosions have occurred in grain elevators and grain handling plants, and in many types of industrial and manufacturing establishments. It now appears that practically all types of combustible dusts or dusts which burn, when mixed with air in proper proportions will explode if ignited by an external source. About the only kinds of dusts which do not explode are the inert dusts, such as shale, limestone, and gypsum.

Relation of Firemen to Dust Explosion Hazard

From the experience that some of the fire departments have had in fighting fires in industrial establishments where explosive dusts are produced, it is quite evident that firemen should become acquainted with the work that has been done on this subject and understand fully the hazard involved in fighting fires in factories where explosive dusts are being created. The courage, bravery, and spirit of self-sacrifice of the firemen in fighting hazardous fires commands the sincere respect and admiration of every red-blooded American. A prominent authority on fire prevention has recently said, "It is because we admire these qualities in firemen that the sad news of the loss of the lives of firemen while fighting fires in industrial plants always comes with a great shock."

Need for Periodical Inspection of Buildings

In order that the members of the fire departments may become acquainted with the dust hazard some provisions must necessarily be made for periodical inspection of industrial plants and manufacturing establishments. These inspections serve principally three important and useful purposes:

1. Conditions which may cause or help to spread fires are discovered and remedied.
2. Firemen become thoroughly familiar with the structural conditions of the buildings and the hazardous manufacturing processes carried on in them.
3. A definite knowledge of the contents of the buildings and the products handled and manufactured is obtained.

Some fires, seemingly extinguished after a few minutes of work, have often become disastrous because the firemen did not know the many flues, vertical openings, openings in fire-walls, concealed spaces, and other avenues for fire to spread. Only close inspection of a building will give this important information.

Explosive Substances

It is common knowledge that dynamite or gasoline or a process in which inflammable oils are used constitutes a serious danger to firemen. Firemen must understand that other substances, such as dusts or chemicals, are just as hazardous, and adopt proper precautions.

Dust Explosions While Fighting Fires

From the investigation of dust explosions that have occurred while fire was in progress it appears that these explosions might be classified under the following heads:

1. Explosions that occur during the drawing of contents of bins or storage vaults.
2. Explosions that occur during the fighting of fires in factories and manufacturing establishments.
3. Explosions that are due to the force of the full stream of water on piles of dust.

Precautionary Measures Recommended

The following precautionary measures are suggested as possible means of dealing with the various explosion causes referred to:

1. Instead of immediately removing the contents of a bin in which a fire has occurred and is apparently extinguished, it would be better to flood the bin and thoroughly wet the material before undertaking to remove it.
2. Plants should be systematically inspected to acquaint the firemen with any dust explosion hazards. This would make possible the adoption of precautionary measures and not permit the unnecessary exposure of firemen to explosions of this character.
3. It would be preferable to use a spray nozzle instead of the heavy pressure from the hose on explosive dusts which are stored in piles.

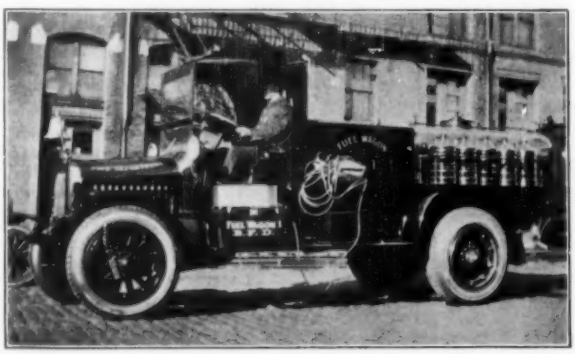
The United States Department of Agriculture, through the Bureau of Chemistry and Soils, is anxious to make available information that will assist firemen in guarding against dust explosions in industrial plants during fire fighting.

Boston Installs Fuel Wagon

A fuel wagon mounted on 2½-ton Mack truck has been placed in service in the Boston, Mass., fire department. It is quartered in the station of Engine Companies 38 and 39 on Congress street, South Boston.

It carries a 300-gallon gasoline supply tank and a number of five gallon filling cans. It also has lubricating oil for use of pumpers at fires.

The truck is equipped with a Syntron electric portable saw



Fuel Wagon in Boston Fire Department
The truck is equipped with an electric saw and with various jacks and tools for wrecking duty at fires.

mounted on the wagon for emergency use. It is believed that in cases where it will be necessary to cut away timbers or to make holes for the insertion of cellar pipes, the saw will prove more effective and will do the work quicker than axes. The truck is equipped with jacks, blocks, towing cables and various tools for wrecking duty at fires. The machine responds to all multiple alarm fires.

HARRY BELKNAP

Mishawaka, Ind., Firemen to Play Santa Claus—Members of the Mishawaka, Ind., department will again play Santa Claus to the poor children. Toys donated by the residents were repainted and repaired by the firemen and donated to the Salvation Army to be distributed to the children. The number of toys received last year even surpassed the expectation of the welfare workers.

What Can We Do to Prevent Arson?

Importance of Immediate and Careful Investigation—The "Corpus Delicti"—Part Photography Plays in the Matter

By W. A. GROCE, Assistant State Fire Marshal of Washington, Olympia *

IN the following paper the author makes the startling suggestion that the greatest proportion of the country's huge fire loss is due to incendiarism. He makes some important suggestions in the fight against this evil:

A careful observation and compilation of the reports of fires in most any city or state for the past several years, leads to the conclusion that a large proportion of the great fire waste is occasional by the incendiary. If this element could be eliminated, the loss would decrease in such amazing proportions as to make the result astounding.

I do not believe that this character of crime can be entirely stamped out any more than any other class of crime, and that to date we have only scratched the surface. There are no figures available, nor can they be obtained showing the extent of the annual incendiary loss in America. The investigation of one fire may tend to show that other fires having occurred years before, were also incendiary.

An incendiary fire, even though the motive was to destroy only a particular property, frequently gets beyond control and results in a large conflagration, whereby the lives of many are jeopardized, and the innocent owners of property are made to suffer great losses.

What the "Crooked" Fire Means to the Chief

Have you ever taken time to figure just what the crooked fire means to you? We all know that every fire is but a spark or flash in its inception. However, there is this difference; the fire that is not of design, is ordinarily what might be termed a "slow burner" excepting those occurring in grain elevators, flour and cereal mills, wood-working plants and other places where quantities of dust are to be found.

On the other hand, the fire starting from some human agency and where preparation has been made, spreads with more rapidity in one minute than the unplanned fire would in fifteen minutes. Do you not think this is some handicap to overcome?

Four Classifications of Arson

Arson may be placed in four classifications; First, Setting fire for the purpose of defrauding an insurance company; Second; Pyromania; Third, Cover-up fires; Fourth, Fires resulting from labor or personal grievances.

Experience has indicated that the first classification is the one that gives us the most trouble and it is this one, I think, that you are particularly interested in, therefore, I will give my thoughts to that end.

There cannot be any established or set rule to follow in regard to the investigation of a suspicious fire, no two cases are alike with this exception. If the fire is of incendiary origin, there necessarily must have been a motive, and someone must have set or caused the fire to be set. These two elements are always present.

The Corpus Delicti

The phrase *corpus delicti*, means "The substance of crime." You have to establish that the crime which is charged, has been committed. The corpus delicti in arson is made up of two elements; first, that the building was burned; second, that it was burned by the willful act of some person and not as the result of natural or accidental causes. Any circumstance tending to rebut the presumption that the burning was accidental may be given in evidence as proof of the corpus delicti. This may be done by showing that the building was fired in two or more places; that gasoline, kerosene or other volatile oils were used. A candle electrical or other mechanical contrivance can be introduced in evidence.

Evidence Should Show Motive and Criminal Intent

After the corpus delicti has been clearly established, the foundation is then laid for the introduction of any evidence, direct or circumstantial, tending to show the act was committed by the accused, and that it was done with criminal intent. Evidence is also admissible which tends to prove motive, such as value of property, insurance carried thereon; removal of merchandise or other articles from premises before the fire; whereabouts of interested parties at time of fire and shortly before its occurrence; their general demeanor before and after the fire and such other evidence having tendency to prove motive and to connect the accused with the commission of the crime.

Make Detailed Examination

When you have a fire which you think is off color, make a detailed examination of the premises. You may find it was set in two or more places: (in one instance we had a case where there were ten separate fires) look for evidence of kerosene, gasoline, turpentine or other volatile oils; study the manner in which the fire burned; trace it to its starting point; how about the windows and doors? Were they open or closed and fastened? Examine the window and door casings, they speak for themselves. Was the owner or tenant home when you arrived? If not, where was he? Talk with him and watch his re-actions, make a note of what he says and what you observe. Was merchandise or furniture in its customary place? If a dwelling, look for articles one would value the most—such as, photographs, jewelry, paintings, silverware, clothing and things that have no value other than for sentimental reasons. These are the things that will be missing. In one case five Bible were found that were removed from the house the night prior to the fire.

Remember, in event of an arrest, you may be called upon to testify as to what you found. Do not disturb merchandise or other commodities until after photographs have been taken; after this, make an inventory of the contents. I have in mind a recent case in my state, where the owner, the day after the fire, brought back to the building, a trunk and several boxes of linens, curtains, photographs and other articles, all of which he had removed shortly before he fired the place. If an inventory had been omitted in this case, we would not have had this evidence, and undoubtedly this person would have gone free. Also ascertain whether or not there was a fire in the stove or furnace when the Fire Department arrived. If not destroyed, examine the electric wiring and note if it was in order. These things are all material in the prosecution of an Arson case.

Even in cases where you have a confession, a complete investigation should be made, as quite frequently, either through

* From a paper delivered before the annual convention of the International Association of Fire Chiefs, at Portland, Ore.

"ANY person who commits the crime of Arson is a cold, deliberate, perverted criminal. The crime cannot be committed in the heat of passion. Accident cannot in any way contribute to it and any person who sets fire to his own or another's property, whatsoever the motive might be, is possessed of a felonious complex and should be punished accordingly."

the influence of friends or an attorney, a confession will be repudiated and it will be necessary that you prove the corpus delicti before the confession can be introduced. Therefore it is well to have all the facts available so that there will be no hitch in your case.

The Arrest

The question of arrest is one for the person having charge of the investigation to decide. There are times when it is advisable to arrest the suspect right away, and again it may be best to wait, perhaps, for the accused to make claim for his loss or for other reasons. Many cases have been lost because the arrest has been made before the evidence was well in hand.

The fact that a fire chief may have very few cases of incendiarism to handle, does not appear to be a good excuse for his failure to post himself on what to do in such cases. "What is everybody's business, is nobody's business"—hence the only solution is to specialize. Every fire chief should have a man in his department to handle this part of the work. Have him make a study of how fires of every description burn, so that in time, he can qualify as an expert witness when needed. It is important that other officers and members of the department should in no way interfere, but should in every possible way assist him in his work.

Police Chiefs Endorse I. A. F. C. Campaign

On June 8, this year, at Windsor, Ont., Dominion of Canada, the International Association of Police Chiefs while in convention, passed a resolution that is of great interest to every chief. I will quote the last paragraph. "THEREFORE BE IT RESOLVED, that the International Association of Police Chiefs endorse this Fire Prevention campaign of the International Association of Fire chiefs and offer our hearty cooperation in their effort to conserve life and property, and do hereby call upon all our members to cause rigid investigation into the origin of all fires, in order to determine if arson has been committed."

It seems to me that the chief of every fire department that has not now a Bureau of Investigation, should immediately get busy upon his return home and seek an interview with the chief of police. Tell him your troubles and ask for his cooperation. Ask for a special detail of one or more men, depending upon the size of your city, to work with a like number of men from your own department. Have them make investigations of all fires. In cities where there is no fire marshal, these men should report their findings to both the chief of fire department and chief of police. This method seems to have reached a degree of efficiency in some of our larger cities.

The reason I say make investigations of all fires, is in part due to my own experience. In many instances, fires that were passed upon as "not incendiary" by department officers were, upon investigation, proven to be otherwise. Many fires appear to be all right to the untrained eye, but when an experienced man begins to dig below the surface, it begins to smell. Establish a bureau of this kind and you will find much to your surprise, the percentage of incendiary fires is considerably greater than you had figured.

Methods Used

We all know that ceiled buildings will burn much more rapidly than those that are plastered, but this fact does not worry the experienced fire maker, as it is an easy matter to remove the plaster. I have in mind a case where a confession was obtained. The confessor was asked why a plastered house was chosen, when so many ceiled buildings were available. He replied that the plaster had been removed not only from the walls, but the ceilings as well, before the building was fired, and it had been buried in the basement. We went out to the location of where the building burned, and digging down a few feet, found what appeared to be a plaster mine. Several sacks of this plaster were introduced as evidence and was quite material in bringing about the conviction of an accomplice in this case.

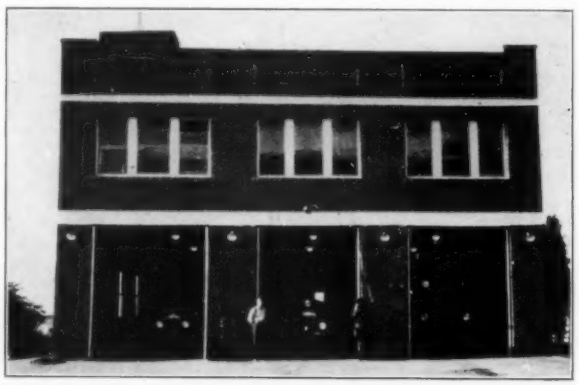
Another instance of where considerable thought was evidenced on the part of those interested, was a case where a fire occurred in the suburbs of Oakland, Cal. Three dwellings were totally destroyed by fire. It seems three men applied for building permits as follows: Mr. C. filed plans and specifications for a $6000 dwelling; Mr. B. for a $5000 dwelling and Mr. S. for a dwelling to cost only $500. The largest building was put up at a cost of $1800, the next one at a cost of $1400 and the smallest one cost only $200. The furniture placed in these buildings consisted of casters, knobs and such hardware as would be found in the debris; a few pieces of broken French plate glass and a barrel of broken hand-painted chinaware represented a china closet and dishes valued at $500. This scheme was carried out even to the kitchen, where they had placed a wash basket full

(*Continued on page* 1324)

Burbank Has Growing Department

A central fire station completely equipped with a kitchen, adequate dormitories for the men, shower and wash room, battery and work room, together with a drill tower, has been erected in Burbank, Cal. At this station is a squad truck that is used in fighting grass or brush fires and equipment for performing salvage work. It also has a power plant on a truck for spot and flood lighting.

The department is expecting delivery of a new 750-gallon Mack triple combination pumper with the parallel pumps — this will be the first pump of this type to be placed in service by the company. At the rear, underneath the body are carried 1½-inch



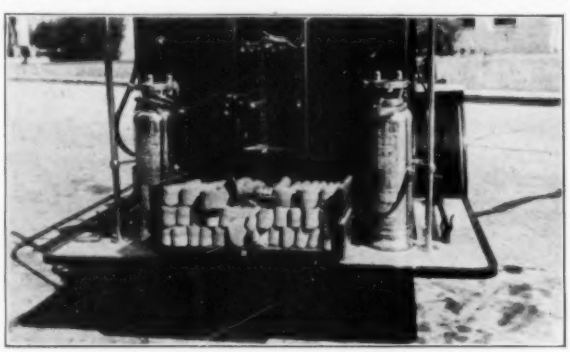
Central Fire Station, Burbank, Cal.

siamesed lines and connections for 2½- to 1½-inch hose. The box that contains all of this is mounted on roller bearing casters under the bed of the truck.

Station No. 2 is located in the much advertised San Fernando Valley section and almost under the broadcasting towers of Station KELW near the First National Studios, the largest motion picture studio in the world. It is of the bungalow type and is equipped with a 350-gallon Seagrave suburbanite that was purchased some time ago.

Station No. 3 is duplicate of the No. 2 station both in design and furnishings. It houses a Seagrave pumper that has been in service for twelve years and is still giving good service.

Fire drills are held each Tuesday at the Central Fire Station. Both men on the off shift and the men who are then on duty participate in such drills. Drills are held by the off-shift men at the suburban fire stations with the men on dutv, every third



Method of Carrying Hose, Squad Co. No. 1, Burbank, Cal.

week. With the exception of the officers, the men are on the two-platoon system.

The department originally was operated as a volunteer organization with a volunteer fire chief and eight firemen. They were equipped with canvas hose mounted on a hose reel. In 1913, the chief was appointed driver and a short while later, a policeman was designated as assistant driver.

The department has been changed to a paid organization. The community is growing at the rate of twenty homes a day, and with the increase of population and the improvement of the land, there is the added complex problem of fire protection. The community has been greatly assisted by Glendale and by other nearby departments in their work to reduce the fire losses.

LIEUT. W. E. SIMPSON,
Engine Co. 2, Burbank, Cal.

Poor Housekeeping—Planing Mill Burns

Accumulation of Shavings Gives Fire Good Start—Department Faces Great Odds

THE fire described in this article of the series on administration is typical of the planing mill fire. A good start, plenty of combustible material around, insufficient fire protection, and complete destruction the result.

The city in which this fire occurred has a population of approximately 8,000 and is located in the northwest section of the country.

The fire department consists of three engine companies each equipped with a triple combination machine and one truck company, having a city service ladder truck.

Two of the triple combination machines are of 700 gallon capacity and one 500 gallon capacity.

Response to Alarms

A first alarm brings out Engine Cos. Nos. 1 and 2 and the city service truck.

A general alarm brings out the remaining engine company.

The water supply surrounding the plant was limited, there being but a single 6-inch main from the city water system, a distance of over 1,000 feet. This 6-inch main was dead-ended.

Four hydrants were available as shown on the diagram herewith.

The Plant

As shown in the diagram the plant consisted of five buildings and three large groups of lumber piles.

The largest building, the planing mill, was one story in height, of brick construction with wooden roof. All interior construction was also of wood. This plant was equipped with the usual line of wood-working machinery typical of this size of mill, which was engaged in turning out doors, window frames, window sashes and similar articles.

Directly to the west of the planing mill, and at its southern end, was a one-story frame storehouse used for storing window sashes, etc. Just beyond this building was a row of two buildings and a large pile of lumber. One building, a one-story frame shed, was used for the storage of lumber; the other building was a one-story brick garage with a wooden roof.

Directly west of these two buildings and lumber piles were two large groups of piles in which lumber was stored until needed.

Still further west was a two-story frame storehouse for the storage of doors and other finished articles. This latter building was reached by a switch track from the railroad as shown in the diagram.

At the west end of the block was a large stove factory of brick and joist construction together with a small warehouse, two stories in height, of brick construction.

Condition of Plant

The planing mill inside represented the very poorest of "housekeeping." No provision was made for the disposal of shavings, and they were used largely for heating the building—heating being provided by two large iron stoves. It was in these stoves that all of the shavings were burned.

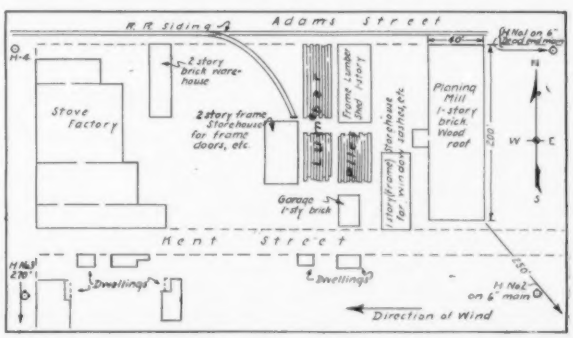
The Fire

The fire occurred during noon hour through one of the stoves setting fire to a pile of shavings. The shavings had not been afire more than a couple of minutes before the flames had reached a large pile of finished stock nearby. All hands were having their lunch, as usual, in the garage and the fire was not discovered until the smoke of it reached the garage.

An alarm was immediately transmitted by telephone to the fire department which sent out a first alarm assignment consisting of Engine Co. No. 1 with a 700 gallon pumper, Engine Co. No. 2 with a 500 gallon pumper and a truck company with a city service truck.

In the meantime an attempt was made to hold the fire but due to the fact that there was no equipment on hand for this purpose no headway was made.

By the time the fire department had arrived fire had spread throughout the planing mill and it was evident that this building was destined to go to the ground.



Engine Co. No. 1 took hydrant No. 1 and stretched in a single line to the northern end of the building. A second line was laid shortly after from the same engine to the east side of the building, operating through a window. Engine No. 2 was stationed at hydrant No. 2 and a single line stretched to the south end of the planing mill.

A general alarm was sent in at once calling out the remaining engine company.

After the lines had been operating in the positions noted for possibly five minutes, the fire went through the roof of the planing mill and seriously threatened the storehouse to the west.

The line from the second engine operating at the south end of the planing mill was too much engaged to note the danger of this exposure and as a result, about the time the remaining engine company rolled in from the city, the frame storehouse was ablaze.

The fire quickly jumped from this building to the lumber pile directly to the west and the lumber pile fire reached the shed and other lumber piles.

An attempt was then made, by placing Engine Co. No. 3 at hydrant No. 3 and stretching a single line to

the garage, to prevent fire entering this building, but the heat was so intense from the fire in the frame storehouse that the line had to retreat leaving this building to the mercy of the flames.

The wind, carrying the heat toward the west, soon drove the fire into the two-story frame storehouse adjacent to the lumber piles, and this building was fully involved after a few minutes.

The chief of the department noting the hopelessness of the situation concentrated all lines at the west of the two-story frame storehouse, and by judicious use of streams prevented fire from extending to the stove factory and warehouse adjacent thereto.

The Editor's ideas on the handling of this fire will be given in the next issue of this journal.

Data Wanted on Volunteer Companies

An officer of a prominent volunteer fire company in New York State writes that he would like to obtain information of volunteer organizations that have a system of choosing line officers by means of examinations or tests. He would like to learn of organizations that have a merit and a demerit system in rewarding officers. This officer would like, if possible, to get the data within the next few weeks.

Fire Survey Made of Boston, Mass.

Boston has more fires for each one thousand of population than either Chicago, Philadelphia, New York, St. Louis, Los Angeles, San Francisco, Buffalo, Detroit, Baltimore or Pittsburgh. Boston has also a higher average loss for each fire than any of these cities with the exception of Buffalo.

Such were the findings made as the result of a survey conducted by the National Board of Fire Underwriters, the report of which has been recently made public.

The per capita fire loss in Boston for 1926 was $6.59; thirty-eight cities in Massachusetts had an average of $4.45; three cities in Maine had an average of $3.38 and six cities in Rhode Island, $3.09.

One of the recommendations made was that there be better cooperation between the Bureau of Fire Prevention and the Massachusetts State Fire Marshal's office. It was suggested that a fireman, after three years service be permitted to advance to lieutenant. Plans for new buildings should be approved by the fire commissioner and that more sprinkle supervisory service be installed. Some of the important parts of the report are as follows:

"The Boston Fire Department for many years ranked high in the matter of equipment and manual strength, but in the past decade there has been a marked variation in efficiency, depending on the outside influence permitted to enter into the administration of the department; discipline at times has become lax and the morale of the department generally has suffered.

"Changes in the office of fire commissioner have been frequent and the short terms of office and lack of continuity of policy have also had their bad effects on efficiency. While there are still evidences of attempts to inject politics into the department, the present fire commissioner, Eugene C. Hultman, appears to have the situation well in hand, and is rigidly enforcing discipline. The morale of the department seems to be recovering slowly, although in many cases the officers seem to have failed to develop the spirit of cooperation so much desired by the commissioner.

"A study of the map of the city showed an unusually large number of fires in four sections, fires not warranted by the type of construction or occupancy. These black spots indicating the fires cover the section along Washington Street, between Lenox and Dudley Streets and between Shawmut and Harrison Avenues; the district between Humboldt and Walnut Avenues and Crawford Street; Warren Street, Blue Hill Avenue, and Savin Street, particularly along Blue Hill Avenue, between Savin and Intervale Streets, and the area bounded by Stratton Street, Woodrow Avenue, Morton and Howard Streets, and Blue Hill Avenue. The first named district consists of minor mercantiles of moderately low values while the others are largely residential of one and three story frame tenements, housing families largely of foreign descent.

"There is an unusually large number of old buildings in the congested value district, erected without regard to fire prevention or fire stopping. Prior to 1923 there were no requirements for the installation of standpipe systems and many of those installed were of inadequate size and design for the purpose intended. At present plans of buildings involving fire protection and fire prevention features are not required to be submitted by the building department to the fire department for its inspection and approval and the latter department frequently has no knowledge of standpipe or sprinkler facilities prior to their installation in the building. As the regulations of 1923 were not retroactive, many of those non-standard standpipe systems are still unusable or of little value.

"The result of these conditions is that the fire department makes little use of standpipes for fighting fires in the upper stories of buildings often where systems of proper type are available. "In the analysis of the large losses, several instances were noted where very large losses from water damage were sustained from the operation of sprinkler heads, the fire department reporting its only operation being to shut off the sprinklers and overhaul and stating that from the volume of water, the sprinklers had evidently been operating for a considerable period. It is obvious that, had these systems been equipped with suitable supervisory service so that the fire department could have been promptly warned of a water flow, a large part of this water damage might have been averted. It is further evident that the water-flow alarm bells on the outside of the building cannot properly take the place of such service. Of the approximately 1500 buildings equipped with automatic sprinklers, as listed by the Boston Board of Fire Underwriters, less than 300 are provided with waterflow supervisory service.

"Another factor having a strong bearing on the fire loss is the inspection work of the fire department. This bureau is now under a competent and aggressive head and appears to be functioning fairly well. Much of the authority under which it works is delegated by the State Fire Marshal, and is not sufficient to permit effective supervision of all hazards. The effectiveness of the bureau is further reduced by the lack of clarity in the law and the non-cooperative spirit now prevailing between the bureau and the state fire marshal's staff as a result of the latter's failure to suitably fix the authority of the two bureaus. As the latter staff is admittedly numerically inadequate to make fire

(*Continued on page* 1330)

Boston District Chief Honored

District Chief John F. McDonough was honored by a banquet held in the Fort Hill Square Fire Station, Boston, Mass., by the members of Ladder Company No. 8 of which McDonough was formerly captain.

The committee in charge was composed of Edward J. Powers, chairman; Benedict Phillips, and Paul Doherty. The smoking room was handsomely decorated with flags and bunting. Deputy Chief Henry Power acted as toastmaster. Brief speeches were made by Councilor-elect Edward Gallagher, District Chief Cornelius J. O'Brien, Captain Thomas Flanagan, of Engine Company No. 25; Lieutenant Frank Shannon, of Engine Company No. 25; and Lieutenant Thomas Brown, of Ladder Company No. 8.

District Chief John F. McDonough

District Chief McDonough was presented with a traveling bag containing a dozen white shirts and collars, fountain pen and pencil, and tobacco.

The following night a reception and dinner to the newly made district chief took place in the Knights of Columbus Hall in Charlestown. Francis M. Ducey acted as toastmaster and the general committee was composed of William P. Owens, chairman; Maurice O'Connor, treasurer; and Bert Livingston, secretary. Jay Russell was chairman of the reception committee. A gold watch was presented to Chief McDonough by "That Old Gang of Mine," a group of Charlestown citizens.

Among the guests were Chief Daniel F. Sennott, District Chief Philip A. Tague, Capt. Maurice Galvin, Capt. Charles Ingersoll, Lieut. Timothy Hefron, and Ex-Fire Commissioner Theodore A. Glynn, of Boston; and Chief Joseph Kelley, of the Danvers, Mass., fire department.

HARRY BELKNAP.

Appreciation of International Cooperation

From the accompanying letter it is quite evident that international boundaries count for very little with the Niagara Falls, N. Y., Fire Department when the firemen of the sister city on the other side of the bridge need help. That such service is duly appreciated by the Canadian cousins across the Niagara River is also evident. The letter was received by Chief R. D. Miller, of the American department, after he and his department had twice assisted the city of Niagara Falls, Ont., when fires threatened to get beyond the control of the Canadian firemen. The offer by the Canadian authorities to reciprocate whenever need arises shows a spirit of neighborly cooperation, as well as high appreciation of the American firemen's help in time of need.

Chief Richard D. Miller, Niagara Falls, N. Y.

Chief Miller has been at the head of the Niagara Falls, N. Y., fire-fighting forces for four years and a member of the department thirty-four. He was appointed as a fireman on June 1, 1894. He served in this capacity until May 1, 1901, when he was promoted to the post of First Assistant Chief. On May 15, 1923, he succeeded Chief Otto Utz as head of the Fire Department.

MAYOR'S OFFICE Niagara Falls, Canada.

November 15, 1927.

Chief Miller,
Fire Department,
Niagara Falls, N.Y.

My Dear Chief:

Will you be good enough to convey to the men of your department the sincere appreciation of the Board of Aldermen, as well as the citizens of this city generally, for your timely and very welcome help on Friday November 4th., when a stubborn fire took place in the McClive Block which threatened to get out of hand and destroy a great deal of other valuable property and which was prevented by your timely arrival.

Again you responded when called upon when the Post Office took fire.

Let me say, Mr. Chief, your friendly spirit, your neighbourly action and your valuable assistance will not be forgotten and let me assure you that at any time your department and your city may require assistance, the full service of your Canadian friends are at your disposal.

With the utmost appreciation of the splendid spirit of co-operation which exists between these two cities and a determination to see that they continue I send to your department My best wishes.

Permit me to enclose a small contribution to your benefit fund.

Yours very truly,

H. P. Stephens

Mayor.

York, Pa., to Conduct Firemen's School—Plans are being made to conduct a firemen's school in York, Pa.; membership will be open to firemen of the company and Boy Scouts.

Chief Coyle of Omaha Presented With Badge—A gold badge set with a diamond was presented to Chief John Coyle of Omaha, Neb., in the presence of the city commissioners and firemen of the off shift.

S. L. Legreid New Illinois Fire Marshal

The new State Fire Marshal of Illinois, succeeding John G. Gamber, who recently retired after ten years of service, is S. L. Legreid, who has been a member of the Illinois Department of Trade and Commerce for sixteen years.

S. L. Legreid
Fire Marshal of Illinois

Mr. Legreid entered the department as a deputy fire marshal in June, 1911. He was placed in charge of investigations and inspections in the coal fields of southern Illinois. He was conspicuously successful in both lines of activity. Taking a civil service examination in 1914 he was first on the eligible list and was promoted to be Superintendent of Inspections for the entire state. His duties were largely to straighten out misunderstandings resulting from orders issued by the department, to take care of appeals made from orders issued and to handle difficult problems arising in connection with inspection work.

In 1917 a civil service examination was held for Supervisor of Fire Prevention. Mr. Legreid was again high on the list and was promoted to this position. As such he made his headquarters in the Springfield office and had entire charge of all of the inspection service of the Department. He held this position until he was appointed Fire Marshal. Mr. Legreid's home is Centralia, Ill. His long service in the Fire Marshal Department has given him a wide acquaintance throughout the state.

Chief Green Has Anniversary

Thirty-three years ago, William C. Green was sworn in, on the sidewalk, during a blinding snowstorm, as head of the fire department in Concord, N. H. He was a member of the fire department for twelve years previous to his appointment as chief.

Chief William C. Green

When February 13, 1928, comes around Chief Green will be seventy-five years old.

Many changes have taken place in Concord during his regime. The first piece of motorized apparatus was purchased in 1913 and four years ago the city purchased its last unit. In 1896 the fire alarm system was improved and during the present year the new Gamewell fire alarm system was installed.

Only one death has been recorded since Chief Green was in charge. A fireman lost his life in 1914 while fighting the Prison fire.

The mayor, city clerk, and all members of the fire department committee who took part in the reorganization of the department are now dead.

Chief Green is always present at the annual conventions of the New England Association of Fire Chiefs and the gatherings of the International Association of Fire Chiefs. His many friends will be pleased to learn of his long service.

Fire Station Opened in Sudlersville, Md.—A new fire station was opened in Sudlersville, Md. There was a supper on the opening night followed by a community dance.

Boston Uses Lights on Helmets

Electric lights, which may be fastened to the front of a fire helmet or carried on a belt at the waist, are among the latest innovations placed in service in the Boston Fire Department by Fire Commissioner Eugene C. Hultman.

Light Used on Fire Helmet

These lights, each of which has two separate bulbs, are connected to a small storage battery strapped on the back or ide of the person carrying the light. The entire weight of the equipment is less than 10 pounds. The power of the lights is 4 volts and 2 amperes and is sufficient for one headlight to illuminate an entire room.

The Rescue Squad was the first unit equipped with the new device which is an adaptation of the Wheat Miners' Lamp and is now being manufactured for fire department use by the Koehler Mfg. Co., Inc., of Marlboro, Mass.

Chief Daniel F. Sennott is much pleased with the operation of the lights and plans to have them furnished as regular equipment for engine and ladder companies. The accompanying pictures give an idea of the compactness and utility of the new lights.

New Fire Alarm Station in Wo cket, R. I.

A new central fire alarm office has been completed in Woonsocket, R. I. The instruments, all of the Gamewell make, include one 24-circuit protector board, four 4-circuit primary alarm board, one four-circuit secondary alarm board, one terminal and cross connecting board, one master clock, one fast and slow-time transformer, one 12-circuit P. N. I., repeater, one 2-dial, four number manual transmitter, one box line recording set consisting of six 4-circuit Nonpareil register, six time and date stamps, and six Peerless take-up reels, two motor generator sets, one gasoline generator set, a 1000-cell F. I. P., battery, four 120-inch four-shelf metal battery racks and one motor generator control panel.

Chief Heyl of Madison, Wis., to Retire—Chief Charles Heyl who has held his present position for fifty years, will retire some time within the coming year.

Anderson, S. C., Orders Ladder Truck—A Seagrave ladder truck costing $8,000 has been ordered by Anderson, S. C.; delivery of the truck is expected March 1, 1928.

Red Oak, Ia., to be Divided into Sections—In order to expedite the response of fire apparatus, Red Oak, Iowa, has been divided into four sections and each district is to have a separate fire whistle. This will tell the firemen from which section of the city the alarm was turned in.

FIREMEN LESSEN SUFFERING CAUSED BY VERMONT FLOODS

Both Maxim Motor Company and Gamewell Company Rush Men to Place Fire Defense System of Barre, Vt., Back to Operating Condition

By HARRY BELKNAP

IMMEDIATELY upon receipt from Barre, Vermont, of news of the extensive damage caused by the floods, the Gamewell Company of Newton Upper Falls, Mass., and the Maxim Motor Company, of Middleboro, Mass., sent mechanics to the scene to repair the fire alarm system and fire apparatus.

The hook and ladder truck remained in the fire station completely submerged during the height of the flood. The motor pumper and combination wagon were both out on calls when the water swept through the streets of the town.

According to an item in the Barre "Times" the combination motor wagon was just making the turn from Main Street into School Street on the afternoon of November 3 on its way to a fire when a crest of water four feet high overflowing from the North Branch overwhelmed the apparatus and stopped the engine. The firemen stuck to the apparatus until washed from their posts when they swam to higher ground. The apparatus became entirely submerged in the raging flood and the current was so strong that the machine was moved some distance and lodged against a pole. This left only one usable piece of apparatus in the town, but fortunately no serious fires occurred.

The Maxim pumper rendered yeoman service in pumping out flooded cellars. It was stationed outdoors on high ground during the flood period.

The men from the Maxim factory overhauled the fire equipment and soon had the combination wagon and ladder truck in service again. The Gamewell linemen and fire alarm experts went over the entire alarm system and by November 14 the fire alarm and fire department of Barre were functioning as before the flood had swept down the valley leaving death and destruction to mark its path.

In White River Junction, Vt., the central fire station was flooded and part of the wall undermined a few minutes after the apparatus had been removed to a place of safety. The fire alarm was used to arouse the town just before midnight when the White River and Connecticut River overflowed their banks. Houses in the Nutt Lane section of the town were submerged up to second story windows. The firemen and policemen made many heroic rescues by use of row-boats and life lines.

After the floods had subsided several fires broke out and for a time threatened to sweep over a wide area in four different towns that had suffered water damage. In Becket, Mass., a town which was innundated and partly wrecked by the breaking of a reservoir, fire destroyed the warehouse of the A. B. Collingbourne Silk Mill, Inc. with a loss estimated at $50,000. Chief William C. Shepard, of Pittsfield, sent apparatus and extra hose to aid the Becket firemen in checking the blaze.

In Ludlow, Vt., fire broke out in a bakery in a 3-story frame building near the river and a high wind carried embers for blocks. Fortunately a coating of snow on the roofs prevented incipient blazes. The town's water supply was out of commission, but after a two hour fight the firemen extinguished the fire by pumping water from the river. Apparatus was sent over the road from St. Albans, Vt., to Cambridge, Vt., when a serious fire started in the latter place.

In Springfield, Mass., fire occurred in two houses that had been left vacant. Hydrants were completely submerged and the fire fighters battled the flames with hand extinguishers taken to the scene in row-boats.

Fire department organizations throughout New England were among the first of the various agencies to send money, clothing, and food supplies to the sufferers in the flooded districts of Vermont and western Massachusetts.

Chief John W. O'Hearn, of Watertown, Mass., announced a gift of $150 to the flood relief fund by the Watertown Firemen's Relief Association and other cities and towns quickly followed the lead.

Lexington, Mass., Firemen Must Serve as Policemen—Members of the Lexington, Mass., department are required to serve as traffic policemen during the hours when children go to and from school.

Steubenville, O., to Add Another Company—Another company will be installed in Steubenville, O., on January 1 making four companies in service. A new triple combination truck will be purchased later. Six men are to be appointed and four lieutenants are to be promoted from the ranks. Edward J. Green is chief of the department, and besides the chief the service consists of thirty-four men.

WITH THE EDITOR

A Happy New Year to All! The old year is drawing to a close and the eyes of all are naturally turning to the future and what it has in store. May this in your case, our Readers, during the coming New Year, be filled with prosperity and happiness, free from all failures and regrets, and be crowned with success and joy.

A Reward for Honesty Honesty is its own best reward! This ancient aphorism was amply illustrated in the case of the New York fireman who turned a large sum of money found by him at the bottom of a closet after a tenement fire over to his superior officer. When the owner was given his property by this officer, the former handed to the fireman, who was present, a cigar! The cigar was declined with thanks.

Fortunately, however, owing to the generosity of two of the honorary deputy chiefs of the department, the honest fireman did not lose the reward his honesty called for. He received from them the sum of one hundred dollars as an appreciation of his act in turning in the money, and thus upholding the good name of the department.

The reward was well deserved in this instance, as the money could easily have been withheld—there being no claimant for it for several days after the fire. The incident is another illustration of the high calibre of the men of the American fire departments.

Another Sacrifice of Young Lives The oft-repeated and so seldom heeded lesson—enforced so terribly in this and so many other instances—that institutions housing the young and helpless should be properly protected from fire, has again been brought forcibly to mind. The holocaust in the Hospice St. Charles, in Quebec, in which some fifty children were lost, could have been prevented if the old structure had been replaced by a more modern one, or even had been provided with sprinklers and other adequate fire protection.

The fact that the newer and fire-resistant portion of the hospice was practically untouched by the flames shows that the fire reached the proportions it did owing to old and inflammable construction and improper safeguards against fire. It is worse than poor economy to house helpless children in a building that is manifestly—owing to its age and inflammable construction—a fire-trap.

It is strange that it almost invariably requires some terrible event of this kind to arouse the authorities to a sense of their obligations to the community at large and in particular to the unfortunates compelled to dwell under such hazardous conditions. Because these little ones happen to be orphans and waifs, that in many instances have no one to take a personal interest in them or protect them is no excuse for their neglect or unnecessary exposure to danger of death by fire. On the contrary, by their very helplessness, these children should be the especial wards of the state, which should carefully watch over them and protect them from danger, and compel those responsible for their safety to so protect them.

It is safe to say that such structures, housing helpless children and adults, also, are by no means confined to the Dominion of Canada. In our own country it would not require close scrutiny to discover parallel instances. We, as well as they, no doubt, need the shock of such an occurrence to awake us to the crying and pressing need for overhauling many institutions housing just as precious young lives as were lost in the Hospice St. Charles. Why not apply the modern principle here of "extinguishing the fire before it is set?" It is a cheaper policy in the long run, and it certainly is much less harrowing.

The fire chief can do much to improve the dangerous condition among public institutions. A word from him as to the providing of fire-resistant structures where possible and the use of sprinklers and other protections where such are really needed, will go farther toward impressing the authorities on the importance of acting than from any other individual. They know and respect both the knowledge and the integrity of the chief.

A Dangerous Form of Degeneracy The pyromaniac is, next to the incendiary, the most dangerous of criminals. When this form of degeneracy manifests itself in the youth it is particularly distressing. This was the case in the instance of a boy of fifteen in New York State who has just confessed to the firing of many barns in the section in which he lives. Apparently the craving for excitement and a desire to see the firemen at work prompted his acts.

Naturally, in cases of this kind there is some mental twist that causes the individual to commit such acts. If his mind were normal the urge to fire a building for excitement would find no place in it. But, whatever may be the wellsprings from which such acts arise, the person guilty of them should be put away in some institution where he or she will no longer be a menace to the lives and property of citizens, and kept there until there can be no doubt of perfect cure from the mental condition causing the acts.

This is only just to the community at large and a strict enforcement of such a rule is the only safe course where individuals of this type are to be found, no mat-

ter what distress or hardship such action may cause the family of the person guilty of incendiarism.

A Burden Hard to Shake Off

When Sinbad the Sailor, in one of his famous voyages of adventure, met an old and apparently feeble man on the shore, his heart was touched and he acceded to a pitiful plea to give the old fellow a lift. But no sooner was the aged man mounted on the adventurer's shoulders than the former developed enormous strength and the unfortunate bearer was unable to shake his live burden off.

Our artist, Art. Espey, has graphically conceived the

"Old Man of the Sea" which the Chief of the Fire Department is compelled to carry upon his shoulders, through the machination of politicians and the parsimony of officials who should know better. It is to be hoped that during the coming year chiefs burdened with this clinging incubus will be able to shake him off and perform their duties unhampered by this destroyer of efficiency!

Fireman Invents Headlight

Headlights that turn with the steering wheel have been invented by Joe S. West, chief mechanic of the Fort Dodge, Ia., fire department. They are the result of three years experimentation.

There are only four moving parts to the device and the instrument can be adjusted to the fractional part of an inch. The motorist can control the speed at which the lights turn ahead of the front wheels, and the angle at which the beams strike the road is also determined by the turn of a screw.

With this mechanism, there is no longer any blind spot in the road, it is claimed. It will fit any car except the model T Ford. A switch on the dashboard disengages the device so that it will no longer depend on the front wheels for its focus. The control is from the steering arm of the car. A strap rod connects one light bracket with the steering arm. The bracket itself is hollow and contains an equalizing device.

Wilmington Celebrates Anniversary

The sixth anniversary of the Bureau of Fire, Wilmington, Del., was fittingly observed by the Second Alarm Association of that city by a dinner held at the Hotel Du Pont Biltmore.

The chief address was made by T. Alfred Fleming of the National Board of Fire Underwriters. His topic was "Fires, Firemen and Second Alarmers."

Alfred Smith, Jr., son of Governor Smith of New York was present and expressed the regrets of his father and of William H. Todd, Brooklyn shipbuilder and former volunteer fireman in Wilmington, who were unable to be present. A telegram was received from Deputy Chief Charles Miller of Atlantic City, N. J., who was unable to attend.

Chief William J. Lutz, Wilmington, Del.

Other prominent men who attended were Governor Robert P. Robinson of Delaware, Mayor G. W. K. Forrest of Wilmington, Henry P. Scott, J. Warner Reed and Victor D. Washburn, directors of public safety, George Black, director of public safety, Chief William J. Lutz, Chief Ross B. Davis of Philadelphia, Chief Daniel E. Johnson, Bridgeport, Conn., William H. Raab of the Brooklyn Volunteer Firemen's Association and others.

At this dinner Chief Lutz spiked the rumor that he intended to resign from his present office. He said that in spite of rumors, he would be found working for the interests of the department.

Prior to the dinner, the invited guests were taken on a tour of inspection to some of the fire stations in the city.

Study Vermont Barn Fires

Following the recent floods in Vermont, the hay in many barns was left in a very wet condition. Spontaneous combustion resulted, and many barn fires were reported.

At the request of Dean J. L. Hills, College of Agriculture, University of Vermont, and at the invitation of other state officials, David J. Price, engineer in charge of the Chemical Engineering Division, and Dr. L. H. James, associate bacteriologist in the Bureau of Chemistry and Soils, U. S. Department of Agriculture, were detailed to make a study of the heating of wet hay. The hay heated badly for a number of days following the receding of waters in the Winooski, Lamoille and Missisquoi river valleys. One barn was destroyed near Middlesex from the heating of hay and fourteen head of cattle were lost.

In many instances it was found necessary to remove the hay from the barns, and in other cases a careful watch was maintained over the heated areas. The study indicated the need for further research to determine the factors contributing to the spontaneous combustion of hay stored in barns.

Burlington, N. J., Men Injured on Test Run—Two members of a Burlington, N. J., fire company were seriously injured during a test run. The chemical truck skidded and overturned in a ditch. Passing motorists helped the firemen to crawl out from beneath the wreckage. The machine had just been repaired and was taken out for a test.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Soda and Acid Proportions

To the Editor:

I would appreciate very much if you would give me the exact quantity of acid and soda required to charge a 2½-gallon extinguisher, also a 20, 30, 35, 40-gallon chemical tank.

Yours very truly,
F. R. T.

Answer. In order that practical figures on the proportions of chemicals used in present-day practices be given, the above question was submitted to the American-La France Fire Engine Company, and which company has furnished the following:

In our 2½-gallon extinguisher we use 4 fluid ounces of 66° Baume sulphuric acid and 1½ pounds of bicarbonate of soda (99.9% pure).

These proportions were determined by tests, the governing element being to prevent the generating of more than 325 pounds pressure per square inch with a closed nozzle and a solution temperature of 120°.

On chemical tanks the formula is 66° Baume sulphuric acid, 99.9% pure bicarbonate of soda and water. To determine the amount of acid to be used divide the capacity of the tank in gallons by 5, which will give the number of pounds of acid. Use two pounds of soda for one pound of acid.

As an example, on a 40-gallon tank: 40 divided by 5 will equal 8, the number of pounds of acid. Two pounds of soda for each pound of acid will require 2 x 8 or 16 pounds of soda.

Some Fire Prevention Questions

To the Editor:

As a reader of FIRE ENGINEERING I should like to submit the following questions for your candid answers:

Question 1. What general precautions would you take to prevent fires?

Question 2. What action should be taken from a fire prevention standpoint when inflammables are found leaking?

Question 3. What precautions can be taken by employes so that when fire is discovered it may be promptly extinguished, and loss and damage kept as low as possible?

Thanking you in advance for the courtesy extended, I remain

D. H. M.

Answer 1. Most fires are caused through carelessness. The first precaution, therefore, which should be taken to prevent fires would be to eliminate carelessness insofar as this is humanly possible. This would entail thorough "housekeeping," elimination of defective apparatus, inspection and rectifying of defective wiring, etc., such as might create a fire hazard. Strict enforcement of "No Smoking" rules would prevent a lot of carelessness incidental to smoking. In general, the above covers the chief points in connection with preventing fires. Where manufacturing fire hazards are encountered, these must be handled individually.

Answer 2. The answer to this question depends upon the size of containers which are leaking as well as surrounding conditions. Where the containers are small, they may be quickly isolated by moving to a point of safety. On the other hand where they are large, this is not possible and it is usually necessary to segregate them by moving inflammable materials from around them.

Danger from inflammable liquids may be reduced by keeping all sources of ignition protected. Inflammable gases are no more dangerous than any other type of gas when no source of ignition is present.

In general, the first action to be taken would be to isolate the containers either by moving them to a point of safety or by moving the other materials away from them. Protect all sources of ignition such as exposed electrical apparatus, open flames, etc.

If it is not possible to move the containers, and the liquid continues to leak in troublesome quantities, have the fire equipment brought up to be ready for an emergency in the event that fire does occur.

Thorough ventilation is absolutely necessary to prevent the accumulation of gases from these liquids in dangerous proportions.

Answer 3. Frequent fire drills are most essential (if they can be classed as precautions) in order that when fire is discovered it may be promptly extinguished. This question infers that fires will occur and the answer to it requires that precautions be given for preventing the fire from spreading, and for extinguishing it.

Drills noted above should include the use of apparatus available, which would make necessary the knowledge on the part of the employes of the location of these devices. The specific use of each type of extinguisher should be carefully pointed out so that the proper extinguisher will be used on a fire requiring it.

Employees should be instructed to transmit an alarm at once where fire is discovered. As to whether or not the public department is called in, this depends upon the size of the private department maintained as well as the instructions issued for calling the municipal department.

Incidentally, it might be mentioned that most industrial plant fires spread because the industrial fire brigade either has excess faith in its capabilities or else those in charge of the plant hesitate to call in the municipal department. This is an entirely wrong view of the situation. Where a fire is burning and may gain headway the municipal department is only too glad to serve. That is why the department is maintained. Unless the fire is an incipient one or unless the industrial plant brigade is very capable, and a well organized one, an alarm should be transmitted at once to the city department.

A Complex Layout

To the Editor:

Will you kindly answer the following question at your earliest convenience:

Question. Find the nozzle pressure, discharge in gallons per minute and friction loss in the following layout: Two 750-gallon pumpers with 200 pounds engine pressure each are delivering water through two 3-inch lines of hose each into a four-way siamese with 400 feet of 3-inch hose on each line (this making 1,600 feet all told) into 1,000 feet of 3½-inch hose connected to a boat divider from which two 3-inch lines of 150 feet each are taken with 1¼-inch nozzles. The boat divider has one 3½-inch coupling and two 2½-inch couplings. All 3-inch hose 2½-inch couplings. Please show example in detail.

Cordially yours,
N. J.

Answer. This is the layout. Two 750-gallon pumpers each pumping through two parallel lines of 3-inch hose 400 feet long to a four-way siamese. The four-way siamese feeds 1,000 feet of 3-inch hose which branches into two single lines of 3-inch hose each 150 feet in length and each equipped with 1¼-inch nozzle.

Engine pressure at each engine is 200 pounds.

The first step in this solution is to combine all the lines into a single stretch of 2½-inch hose. This is accomplished as follows:

Four parallel lines of 3-inch hose are changed into a single line of 2½-inch by dividing by the factor 32. 400 divided by 32 gives 12.5 feet of 2½-inch hose, which is the equivalent in a single line of 2½-inch hose of the four 400-foot lines of 3-inch hose.

The factor for changing 3½-inch hose to 2½-inch is 5.8.

1,000 divided by 5.8=172.5 feet of 2½-inch hose.

The factor for changing two parallel lines of 3-inch hose to a single line of 2½-inch hose is 9.35.

150 divided by 9.35=16 feet of 2½-inch hose.

Adding these three figures together we get 12.5+172.5+16=201 feet of 2½-inch hose.

Next, combine the two 1¼-inch nozzles.

This is done by squaring the diameter of each nozzle and adding the squares; then taking the square root of the sum.

1¼ x 1¼=1.56. Twice 1.56 is 3.12. The square root of 3.12 is 1.77, which is the diameter of a nozzle equalling the two 1¼-

inch nozzles. 1.77 is nearest to a 1¾-inch nozzle, so that the two 1¼-inch nozzles will be assumed to be equal to a single 1¾-inch nozzle.

$$\text{N. P.} = \frac{\text{E. P.}}{(1.1 + \text{K} \times \text{L})}$$

$$= \frac{200}{1.1 + 0.907 \times 4)}$$

In the above 4 is the number of 50-foot lines (approximate) of hose in the 201-foot stretch; 0.907 is the value of K for 2½-inch hose with 1¾-inch nozzle.

$$\text{N. P.} = \frac{200}{4.728} = 42.3 \text{ pounds.}$$

This is the nozzle pressure at the combined nozzle, or the nozzle pressure at each of the nozzles.

To find the friction loss we subtract the nozzle pressure from the engine pressure or 200—42.3=157.7 pounds friction loss.

The discharge from the combined nozzle (1¾-inch) is Discharge=30 x 1¾ x 1¾ x √42.3.

=597 gallons per minute approximately. The flow from each of the 1¼-inch nozzles would be one-half of this amount or 298.5 gallons per minute.

Some Promotional Questions

The following is the conclusion from last issue of the collections of promotional examination questions sent in by "M. A. W." and the replies:

33. Explain fully how many lines of hose can be stretched from a high pressure portable hydrant head and what fittings are required.

34. Why are clapper valves placed on two-way siamese connections to standpipe to be found on outside of building or elsewhere?

35. What do you consider the most vital point in connection with a high pressure system?

36. What is known as a "back draught" in a building on fire, and describe its action?

37. What are the disadvantages of unnecessary long leads?

38. When an entire building is charged with heat, smoke, fumes or gases and you receive orders to ventilate the building, how would you proceed if you are in charge of a truck company?

39. When there is high pressure on a line and the nozzle opening is causing it to spray, what would you do to get an effective stream?

40. When fighting a fire in a cellar or subcellar from the front and rear of a building, what precautions should be taken to prevent the fire from extending upward?

41. In reaching a tenement house fire you are the first captain to arrive and take charge. What would be your first duty?

42. Should controlling or shut-off nozzle be shut off when the engine is working at high pressure, or when there is high pressure on the line?

43. What is the duty of the first captain arriving on fire grounds on an alarm of fire, if being understood that the district engineer has not yet arrived?

Answer 33. This answer depends upon the type of hydrant heads you use, and can only be answered when data is furnished on the number of outlets, etc.

Answer 34. If clapper valve were not placed on a two-way siamese connection which feeds the standpipe at the outside of a building, it would be necessary for the fire department to close one of the connections in some manner or other where a single line of hose were to be used. The function of a clapper valve is to shut off the water from flowing out of one of the siamese connections when it is being forced into the other one. It makes possible the use of a single line of hose to feed the standpipe without the loss of any of the water.

Answer 35. The most vital point in connection with a high pressure system is the pumping plant. If the pumps break down the system is out of commission. On the other hand, if one or two of the mains or hydrants should rupture, it would be possible to segregate the broken sections and bypass the water around so that sufficient could be secured at the fire to handle almost any blaze.

Answer 36. Back draught is caused by the rapid combustion of combustible gases which are thrown off by a fire upon smouldering. When a fire burns in a room or building where insufficient air is present, combustible gases are thrown off during the process of incomplete combustion and when a door or window or ventilator on roof is opened up and air gets to the combustible mixture, and at the same time the mixture is ignited by the presence of flame at the fire, a rapid combustion or explosion occurs. This explosion is known as "back draught" and may be sufficient in power to even blow out windows, doors and in some cases collapse poorly built walls.

Answer 37. The chief disadvantages of unnecessarily long leads are: excessive friction loss, with resulting low pressure at the nozzle, and the unwieldiness of these long leads. To keep the friction loss down within reason it is necessary to use short leads of hose. To make the lines fully mobile it is necessary to limit their length.

Answer 38. Proceed as follows: Direct two men to the roof of building to open up sky lights over stair shaft, elevator shaft, dumb waiter shaft or other vertical shafts.

Then open up windows on the various floors working from the upper floors down. Various tools may be brought into play for opening up. In special cases, for instance, six or twelve foot hook for opening up the windows on floor above, ball and chain for opening up windows on floor below, or even scaling ladder, where necessary.

Answer 39. When the nozzle sprays when high pressure is being used it is an indication that the pressure is too high. To reduce or eliminate the spray it is necessary to decrease the pressure or else put on a larger size tip. Too much pressure causes the stream to break or spray just as it leaves the nozzle and the remedy for this spray is reduction of nozzle pressure. This, as noted, above is accomplished by either increasing the size of the tip or reducing the pressure at the hydrant or engine.

Answer 40. Problem states "when fighting a fire in a cellar or sub-cellar from the front and rear of a building." This is questionable practice for the men operating at the rear are apt to be driving the fire against the men at the front. However, assume that the lines are working in at both ends, care will have to be taken that the fire does not extend vertically by way of cellar stairs, pipe recesses or other openings in floor. The methods usually employed to check the upward spread of fire is to remove one or two boards from the floor the entire length of the building and get lines in operation. This opening up of the floor provides ventilation for the men working in the cellar and at the same time lines can cover the opening in the floor to prevent the fire from gaining a hold on the floor above. The use of cellar pipes is also very essential in cellar and sub-cellar fires. These devices can be used for protecting the underside of flooring or ceiling.

Answer 41. Life must receive first attention. Fire usually travels rapidly in tenement houses, particularly of the old style, and once it rises in the stair shaft this means of exit is cut off. Only the fire escapes then remain. Where fire rises in the stairwell and soon involves the various floors, people are driven to the windows and are likely to be found on the fire escapes soon after the fire has mounted the building. In effecting rescues the first company on the scene should get ladders at once to the fire escapes or at windows and assist people thereon to escape. If they are not already on the fire escapes, and many of them may be unaware of the fire, the first duty of the fire department is to arouse the tenants of the building and assist them to safety. Just as soon as apparatus arrives so that lines can be gotten into operation, ventilation over the stairwell is the next move, followed promptly by the stretching in and operation of lines at the ground floor around the base of the stairwell.

Answer 42. The shutting off of a shut-off nozzle when engine is operating at a high pressure, or when there is high pressure on the line, is a dangerous practice. If the line is long and the engine is operating at a high pressure, just as soon as the nozzle is closed the full pressure at the engine reaches the nozzle (unless the nozzle is at a considerable height above the engine). Then just as soon as the nozzle is again opened, it is opened not with the pressure it formerly had but with the engine pressure. Injury might thereby result to men.

Furthermore, shutting off the nozzle when it is operating at high pressures is likely to cause a rupture of the hose or blowing off of a coupling. If the shut-off nozzle must be shut off for any emergency it should be done so slowly that no shock is transmitted to the hose.

Answer 43. The first captain arriving at the fire grounds on the alarm of fire should immediately assume full command of all reporting companies until a superior arrives. All companies pulling in after his arrival should report to him for assignment.

He should size up the situation and assign apparatus so as to cover the exposures, and confine the fire. He should, of course, give first attention to saving of life. The captain's duty is precisely the same as the duties of the chief of the department until a superior is at hand.

Fights for Cleveland, O., Pay Boost—An ordinance has been submitted to give every man in the Cleveland, O., fire department a flat raise of $400 a year. According to the fire pension board, the raise was agreed on prior to the recent election.

QUEBEC ORPHANAGE FIRE TAKES 36 LIVES; NUNS SAVE CHILDREN

Youngsters Mostly From Six to Nine Years Old—Origin of Fire Unknown—Orphan Loses Life Trying to Save Lives of Those Caught

THIRTY-SIX children, ranging from six to nine years old, were burned to death in a fire that destroyed the Saint Charles Hospice, an orphan asylum in Quebec, Canada. Many were caught beneath the ruins and others could not be accounted for. It is, therefore, impossible to give final figures.

Fire started just before midnight and even before the fire department arrived the entire building was ablaze. The flames started in the cellar and worked its way into one of the dormitories. Nuns quickly tried to form some kind of organization to direct the children to safety. When the firemen arrived the faces of scared, screaming and crying youngsters could be seen framed against the red glow back of the windows.

The life net was immediately placed into position. Soon there was the continual thud as child after child was dropped from the burning building. Nuns and firemen helped to search for the orphans. At the time of the fire there were 371 children in the hospice in addition to thirty sisters of the Good Shepherd.

When no more children could be seen at the windows, the firemen fought their way into the building and found seventeen children who had become asphyxiated by the smoke. Among the victims was the body of Rose Gaurealt, an eighteen-year old orphan. She was the outstanding figure of the catastrophe.

The Hospice St. Charles that was Destroyed in Quebec

She made a number of trips into the building and directed scores of children to safety. Disregarding the warnings of both firemen and nuns, she went back just once too often. She was overcome by the dense fumes.

The building was not just an orphanage. Parents left their children at the school while they went to work. When word of the fire spread, frantic parents stormed through the narrow doorway leading to the morgue to identify the bodies.

According to one nun, most of the children who lost their lives did so after having been saved. All had been ushered out of the smoke-filled dormitory. The tots were only half awake. As soon as the door was opened they encountered a gust of smoke. They were amazed and stupefied. Dazed, they walked back into the room from which they had come. There they were overcome by smoke. Some children fell in halls and passageways.

The new section of the orphanage, of fireproof construction, was slightly damaged.

As soon as rescue operations were started, a human chain was formed from the hospice to a tobacco factory nearby, where the children were cared for until other arrangements were made.

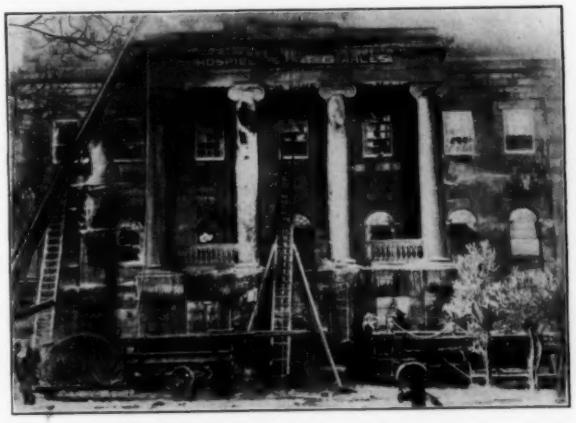
What a sad Christmas story this makes! Firemen working through the hall found a Christmas tree all decorated waiting to be illuminated for what would have been a most joyous season.

Firemen were hampered by the dense smoke and the darkness. With the collapse of the walls, it was impossible to continue the rescue work. A large bin of coal caught on fire and the resulting heat was so intense that it was impossible to approach the structure for some time.

Many of the children were cared for in private homes and in hotels. This made it difficult for rescuers to check up on the dead and the missing.

The morgue was the scene of both sadness and joy. Parents came to identify the bodies which they hoped would not be their children. Others who recognized the young ones, cried in anguish. It was a repetition of the time when a theatre was burned in Montreal with many children inside.

The Province of Quebec has been rather unfortunate lately in the number of bad fires. With the number of deaths in the



Front of Quebec Orphanage After the Fire

hospice fire, the fire victims this year number two hundred. Some of the bad Canadian fires are as follows:

December 30, 1916—Forty-six lost in fire at St. Ferdinand of Halifax Asylum, Quebec.

February 14, 1918—Fifty-three babies burned at Grey Nunnery Creche, Montreal.

October, 1922—Forty or more lost in northern Ontario forest fire.

January 9, 1927—Seventy-eight lost in fire at Laurier Palace Theatre, Montreal.

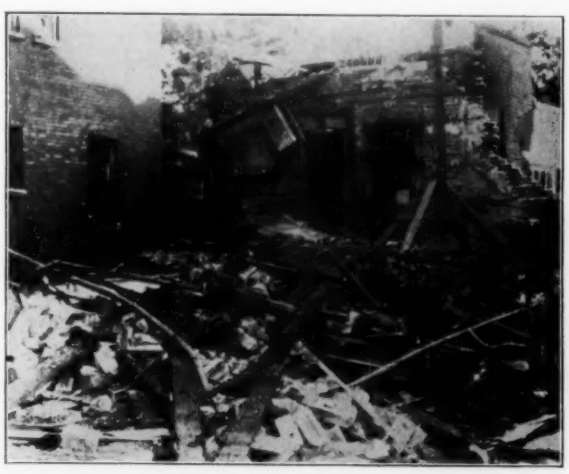
January 23, 1927—Thirteen lost in fire at London, Ont.

September 19, 1927—Twenty lives lost in fire at Lac La Flonge Orphanage, Saskatchewan.

Lives Lost by Cleaning Home

An explosion from gasoline in an electric washer destroyed a twelve-room, three-story brick home in one of the finest residential sections of Toronto, Canada, and was the cause of three people losing their lives.

The adults in the house wanted to clean their curtains. They placed the soiled material in an electric washer in which they



Toronto Home Destroyed by Explosion in Electric Washing Machine Filled with Gasoline.

placed some gasoline. The father of the household, just before he died, stated that sparks from the motor on the washer caused the explosion.

The fire department received an alarm by telephone. Two American-LaFrance triple combination pumpers and one 1,000-

gallon Gotfredson Bickle pumper were sent in command of District Chief Jones. When the first company arrived the whole house was afire, flames were shooting about fifty feet into the air, and the adjoining building had caught on fire.

Another alarm was turned in bringing Chief Russell, Deputy Chief McClain, two American-LaFrance triple combination pumpers, 1 85-foot American-LaFrance aerial truck, 1 Seagrave hose and chemical truck and the emergency car of the gas company.

Five hose streams were played on the building and in about one-half hour the fire was out and every one in the family with the exception of the baby had been accounted for. Searches were made in the ruins for the child. Floodlights were sent up from the Toronto Transportation Commission and after two hours of diligent work, the body of the child was found.

JOHN KARL LEE.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending December 16

FLINT, MICH.—First Congregational Church damaged..... 35
KERENS, TEX.—Warehouse of Kerens Cotton Yard..... 80
JACKSON, MISS.—Mill, Graham Stave & Heading Co..... 50
PERU, IND.—Bldg. of W. C. Redmon Sons & Co. damaged..... 25
LYNN, MASS.—Tracy School destroyed..... 165
NEW ORLEANS, LA.—Plant of St. Benard Cypress Co..... 80
PERRY, TEX.—Farmers State Bank..... 65
ALTUS, OKLA.—Noble-Ray Produce Co. & adj. property..... 280
KANSAS CITY, MO.—Unit of Morris Packing Plant damaged.. 400
WEST NEW BRIGHTON, S. I, N. Y.—Dwelling at 28 Walnut St. 25
NEW BOSTON, TEX.—Three buildings destroyed..... 30
SAN FRANCISCO, CAL.—Bldgs. and wharves in Butchertown dist..... 125
BOSTON, MASS.—Property on farm of George Kara..... 40
NIAGARA FALLS, N. Y.—F. W. Woolworth store damaged.... 40
CAMDEN, ARK.—Plant of Camden Ice & Coal Co. destroyed... 50
LINCOLN, NEB.—Bldg. occupied by Hardy Furniture Co..... 200
HAVERSTRAW, N. Y.—Lodge Bldg. of Haverstraw Lodge of Elks..... 250
ALTON, IOWA.—Reformed Church at Newkirk, 8 mi. north.... 25
DES MOINES, IOWA.—Plant of Western Silo Co..... 40
WINCHESTER, ILL.—Suter Motor Co. plant and adj. property 80
GARY, IND.—Indian bldg. damaged..... 25
LAGRO, IND.—Barns on Theo. Gillespie farm destroyed..... 40
COUNCIL BLUFFS, IA.—Business establishments damaged.... 25
EAST CHICAGO, IND.—Three mercantile bldgs. destroyed.... 160
KALAMAZOO, MICH.—Stockroom of Lewis Rapid Transit Lines 30

Fire Destroys Orphanage in Bernardsville, N. J.

Three children lost their lives in a fire that destroyed the dormitory and school building of Villa O'Connor, a Catholic orphanage in Bernardsville, N. J. The fire is believed to have started from a defective oil burner. Nuns told the investigating officials that the day before the fire they noticed a pool of oil near the burner. A repair man who was called to look at the trouble, sprinkled some ashes over the oil and promised to return the next day to search for the trouble. Fire broke out the following day and caused a $400,900 damage.

JELLICO, TENN.—Jellico Lumber Co. damaged..... 80
GREENVILLE, TEX.—Property of Texas Cotton Oil Co..... 140
SMITHVILLE, TENN.—Business establishments damaged..... 30
LITTLE ROCK, ARK.—C. V. Hoke Textile Mill..... 30
CALIPATRIA, CALIF.—Five establishments destroyed..... 100
SANTA CRUZ, CAL.—Several buildings damaged..... 40
CHICAGO, ILL.—Main plant, Edward Hines Lumber Co..... 400
W. BROOKFIELD, MASS.—Barn and milk house, Shattooquis Reservation..... 50
JONESBORO, ARK.—Property of Jonesboro Compress Company 325
SAULT, ONT.—Two stores and restaurant destroyed..... 80
HOLLYWOOD, CALIF.—Section of Metropolitan Studio..... 80
PITTSBURGH, PA.—Grant Public School destroyed..... 25
MANSFIELD, LA.—Plant of Louisiana Public Utilities Co.... 80
CHICORA, MISS.—Dock sheds, Robinson Land & Lumber Co.. 40
COLUMBIA, S. C.—Factory of F. S. Royster Guano Co., Roysters 75
PROVIDENCE, R. I.—Church of Messiah, Olneyville..... 80
GLADBROOK, IOWA.—Walters Garage destroyed..... 40
SHAWNEE, OKLA.—Carniegie Library destroyed..... 80
JOLIET, ILL.—Dept. store of Dinet & Nachbour..... 165
CHICAGO, ILL.—Flatiron bldg., North Ave. & Robey St..... 40
RADFORD, VA.—Radford Racket Store destroyed..... 40
MENTONE, IND.—Several business establishments..... 40
HARRODSBURG, IND.—Theatre and adj. property..... 25
SHREVEPORT, LA.—Cedar Grove School..... 40
GULFPORT, MISS.—Roof of Colonial Hotel..... 25
WESTON, W. VA.—Foster Apartment damaged..... 25
LUDLOW, KY.—Shops of Cincinnati Southern R. R..... 65
CENTERBURG, OHIO.—Garage of V. M. Thorp damaged..... 40
MONTREAL, QUE.—Plant of Canada Brass Products Co..... 25
INDEPENDENCE, COLO.—Bldgs. at Vindicator Gold Mine... 165
BRUSH, COLO.—Central Grade School destroyed..... 160
FRESNO, CALIF.—Plant of Zellerbach Paper Co. damaged.... 125
MODESTO, CALIF.—Elias Harris Bldg. damaged..... 65
NEWPORT, KY.—Grain elevator of Geo. Keller Company..... 160
LYNN, MASS.—Bldg of Gifford Furniture Co. destroyed..... 80
STRATFORD, OHIO.—Car barns, Columbus, Del. & Marion Traction..... 400

Week Ending December 23

SPRINGFIELD, ILL.—Strum Bros. & Liggett Drug Co. damaged.125
ONIWA, WIS.—Wincensten & Brunk general store destroyed.... 25
MAMON, LA.—O. L. Fusilier mill and warehouse..... 40
ERIE, PA.—St. Mary's Home for Aged damaged..... 25
PHILADELPHIA, PA.—Plaza Moving Picture Theatre damaged. 25
ST. CLOUD, MINN.—Middlebrook Motor Co. & adj. property... 25
TAYLOR, TEX.—Property in business section.....125
SIKESTON, MO.—Plant of Sikeston Gin Co..... 25
SALTCOATES, SASK.—High School bldg. destroyed..... 25
DALLAS, TEX.—Plant of Consolidated Wafer Co..... 80
AUXIER, KY.—School bunlding..... 25
W. STATESVILLE, S. C.—Main bldg. Hall Hosiery Plan..... 50
REEDSPORT, ORE.—Anderson Packing Co. & adj. property....100
LYNN, MASS.—Auditorium Theatre, Andrew Street..... 25
CLEVELAND, O.—Plant of E. F. Hauserman Co., Cuyahoga Hgts.165
KANSAS CITY, MO.—Water Works property, Mo. River tunnel.. 40
WAKEHAM, OHIO.—Postoffice and adj. business property..... 75
SEYMOUR, TEX.—H. H. Fancher estate property..... 30
LANCASTER, PA.—Residence of J. M. Davidson, School Lane.. 80
MONESSEN, PA.—Specialty Dept., Pittsburgh Steel Co..... 80
MOLINE, ILL.—Business block destroyed..... 80
MONUMENT, KANS.—Consolidated School destroyed..... 25
WHITNEY, NEB.—Six business buildings destroyed..... 65
COVINGTON, OHIO.—Bldg. occupied by C. W. Carr Company.. 25
WOODBRIDGE, N. J.—Woodbridge Ceramics Corp. plant..... 40
SUBIACO, ARK.—Subiaco Abbey destroyed..... 800
SIDNEY, OHIO.—Thedick bldg. and adj. property..... 100
MARSHALLTOWN, IOWA.—Plant of Cooper Mfg. Co..... 65
INDIANAPOLIS, IND.—Banner Furniture Co., S. Meridian St.. 65
ZYLONITE, MASS.—Barn on Howland Farm destroyed..... 80
CHADRON, NEBR.—St. Patrick's Catholic Church..... 65
LINCOLN, NEB.—Bldg. occupied by De Brown Auto Co..... 65
HOQUIAM, WASH.—Plant of East Hoquiam Shingle Co..... 40
DAMASCUS, VA.—Business establishments damaged..... 100
SOUTHINGTON, CONN.—The Oxley Block damaged..... 65
BLACKLEY, KY.—Entire village destroyed..... 250
SARATOGA SPRINGS, N. Y.—Six frame houses, Dublin Section 60
ARDMORE, OKLA.—Three one story business bldgs. destroyed. 40
HOXIE, ARK.—Several residences and church destroyed..... 30
BOONE, IOWA.—Otis and Nelson Lumber Yards damaged..... 80
DULUTH, MINN.—Golden Chain Store destroyed..... 40
MASSILLON, OHIO.—Plant of Eaton Spring Co. damaged..... 40
MONROE, N. C.—Business establishments damaged..... 160

What Can We Do to Prevent Arson?

(*Continued from page* 1314)

of old rusty and worn out cooking utensils they had purchased from a junk shop for 50 cents. Silverware of a good make and in quite some quantity was placed in each of the two larger dwellings; ranges of standard make as well as bathroom and lighting fixtures appropriate to a home of that kind were used. However, these articles had all seen considerable service, some of them having been through as many as nine fires.

Over-Insurance on Property Destroyed

Insurance was placed on these properties as follows: $5500 on Mr. C's house, with $3500 on contents; $4500 on Mr. B's house with $3000 on contents. No insurance was placed on the small building nor its contents. Soon thereafter, a fire occurred and all three buildings were destroyed; $16,500 was collected on

what cost less than $4,000. I assisted in the investigation that brought about the arrest of the three men and was present when each of them made his confession. One was arrested in the city of Portland, Ore.; a few months later another was arrested in California, and about one year later, the third was apprehended in the state of Washington. From the time the first one was arrested to the time of the arrest of the last one, no two of these men had conversed with each other by word of mouth or by communication. Therefore, I feel satisfied the story told by the three men was a true version of what happened. Each one told in detail the story as I have related. When the time came for the fire, they "loaded" each building by spreading therein a quantity of linseed oil and turpentine, and after sitting up all night for eleven consecutive nights, they set the smaller house on fire while a strong wind was blowing from this direction toward the two larger buildings. After the fire had spread to the second building and had started on the third, they awakened the neighbors, the nearest being 300 feet distant, and turned in the fire alarm. By the time the neighbors and the fire department arrived, the small building was down, and the other two were burning beyond control. Adjusters arrived, and learned from the neighbors that the fire started in the home of poor Mr. S. who had no insurance. Proofs of loss were taken and the full amount of insurance carried on the two larger buildings was paid.

The Case of Fresno, Cal.

How many more fires of this kind are occurring each year we do not know, but it is only reasonable to assume that there are many. My experience has been that in several communities of the state where we have had a bad fire record over a period of time, that, when we have centered our efforts in that locality, making investigation of all fires, bringing about the arrest and conviction of one or more persons on a charge of arson, fires of any consequence have stopped, at least those of mysterious origin. This condition, I believe, to be true in many places. Take Fresno, Cal. for instance—for many years considered the hot spot of the Pacific Coast, and a place that insurance companies were shy of and in many instances, companies cancelled such liability as they had in force and withdrew. After a few years of intensive work by Fire Chief Thos. Baird and Fire Marshal Williams, conditions were changed to such a degree that insurance rates have been materially decreased, and competition on the part of insurance companies for business in that City is quite keen.

Ask any old timer in the fire department in Portland, Ore., what happened in that city several years ago. I do not wish to be misunderstood in this matter, as in no sense do I wish to leave the impression that the reduction in fire losses is entirely due to the investigation work. We all know that the inspection and educational work comes in for its share of credit.

I realize that it is necessary for all of us to take cognizance of the undisputed evidence of this gigantic conspiracy, and concerted action must be taken to combat it in order that the greatest good may be accomplished.

Significance of Fire Loss Statistics

Statistics as compiled by the National Board of Fire Underwriters covering losses in North America, show that *80% in number and 12% in dollars of the total fire losses paid by insurance companies are for claims of* $100 *and under.* This means that 20% of the aggregate number of fires occurring each year carry 88% of the financial loss. If you will give a little study to these figures, I believe that you will discover that the major portion of this 20% of fires are from cause *"Unknown"*.

I have given this matter very careful thought and believe that a conservative estimate of the number of incendiary fires would be 25% of the 20% before referred to. Take your pencil and paper and you will find that the annual loss in dollars resulting from activities of the Fire Bug totals well over the one hundred million dollar mark.

Must Meet Question with Firm Hand

In face of these figures let us not be content by carrying on as in the past. We have given the question of Arson, by guarding this phase of our work with secrecy, a fair and impartial trial and have failed to accomplish any more than to send a scattering few persons in each state to the penitentiary. It seems to me that it is high time that we open the door of the closet or pull down from the attic the family skeleton and rattle his bones until they can be heard in all parts of your city, state, province or county, and let the people in on the low-down of what constitutes at least a large portion of our annual fire loss. A man or woman with one match or torch can destroy with one fire, what it takes years to building with inspection and educational campaigns.

Everyone seems to be awed at the very thought or mention of Arson. A great many persons have the idea that the discussion of the ways and means used by the incendiary will serve as suggestion to others to go and do likewise and result in more fires of this kind and character. This impression, I believe, is erroneous. Take for example any other crime listed on the docket of any court. What would be the result if as little attention was paid to it as is given to the commission of the crime of Arson? Why, men, your wife, your daughter, your mother and even yourself would not be safe on the streets of even our well policed cities.

I have intentionally omitted any mention of the part over-insurance plays in this grave problem as I feel satisfied you have heard this question discussed many times. There is also considerable that can be said in regard to the adjustment of losses but this is a story in itself.

Indifference of Public to Question

Utter indifference of the public insofar as Arson is concerned is far reaching. It not only effects the layman, who may have knowledge of facts pertaining to a case of Arson and will not divulge what is known, and those that by chance are drawn for jury duty, but it reaches out to our honorable courts as well. It is not an infrequent occurrence for some judge, after a jury has returned a verdict of guilty in a case of Arson, to give a suspended sentence.

Just bear this idea in mind, any person who commits the crime of Arson is a cold, deliberate, perverted criminal. The crime cannot be committed in the heat of passion. Accident cannot in any way contribute to it and any person who sets fire to his own or another's property, whatsoever the motive might be, is possessed of a felonious complex and should be punished accordingly.

Attack on Problem Must be Carried Into Daylight

In dealing with this grave problem, let us change our plan of attack and carry our campaign against this evil out into the daylight for observation and discussion by our service clubs and other educational organizations. I am quite sure if 10% of the energy is devoted to the investigation of fires, that you devote to the elimination of fires as resulting from carelessness, I am satisfied that the result will be most gratifying.

The American people must be awakened to the realization of the situation regarding fires of incendiary origin and to the seriousness of this enormous loss of life and property, if we ever expect to make any headway in the suppression of Arson or incendiarism.

Grenfell, Acting Chief of Portland

Effective January 1, 1928, Edward Grenfell, now first assistant chief, will be advanced to acting head of the Portland, Ore., fire department to take the place of Chief Lee G. Holden who will be retired. The civil service board plans to hold an examination for chief soon. Should Chief Grenfell rate within the first three of those taking the examination, he will be appointed permanently.

The selection of C. A. Bigelow, commissioner of public affairs, was not a surprise to those acquainted with the Portland department. The advancement of Mr. Grenfell means that there will be advancements all along the line.

Uniformed Firemen Elect Officers

The Uniformed Firemen's Association of New York City has elected Antion Holterbach as president. He had been filling the place since last March, having been vice-president when President Albert E. Guinness died.

The election campaign was both sharp and touchy since there were originally five candidates in the field for president. One dropped out, leaving four to finish. Holterbach won by 253 votes over Fireman Charles A. Farley. Holterbach polled 2,092 votes, Farley 1,776, Richard Hanley 520 and Floyd S. Stickles 246.

A caucus held a few weeks ago by the four candidates seeking to depose Holterbach resulted in a disagreement as to which three of the four would yield and throw his strength to the surviving contender. Later one of the quartette carrying on the offensive withdrew from the race and the other three waged a losing battle, taking enough votes away from Farley, to guarantee Holterbach's election.

Fireman Lawrence A. Gorman, whose late father was a fireboat engineer for over thirty years, was elected vice-president. Gorman defeated Richard A. Hill by 204 votes. He received 2,024 and Hill 1,820. A third candidate John J. Ormond received 700 votes for vice-president.

The closest contest of the election was that for the office of

financial and recording secretary. Michael Collins, who received 2,201 votes, was reelected over Abraham Rosenberg who polled 2,148; Charles H. French ran a poor third with only 215 votes

The only contest for borough trustee in the asscciation was for the borough of Queens. Thomas F. Blaney received 1,667 votes, Charles F. Stolz 1,216, David B. Casterlin 1,097 and Joseph G. Varga 501.

Others elected without opposition were: Treasurer, Edward F. Hoysradt; sergeant-at-arms, William O'Keefe; trustee for Manhattan, James J. Donohue, Jr.; for Brooklyn, Harry J. Mahoney; for the Bronx, Fred. H. Boettjer; and for Richmond, Charles R. Weidner.

WM. J. DALY.

Refused New Truck—May Strike

Fifteen members of the Livingston township volunteer fire department in New Jersey have threatened to turn in their badges because of the disgust at the delay of the purchase of fire apparatus.

The firemen had their minds set on a certain type of apparatus. That make costs $500 more than the authorities desired to spend. The fireman offered to raise the difference themselves.

Chief Hockenjos said, "Since the men are acting in a voluntary capacity and since they are doing their work in a very commendable fashion, I believe they should have a voice in selecting the type of truck they are to man."

Meanwhile nothing has been done towards ending the dispute over the apparatus.

New Chiefs' Association Formed

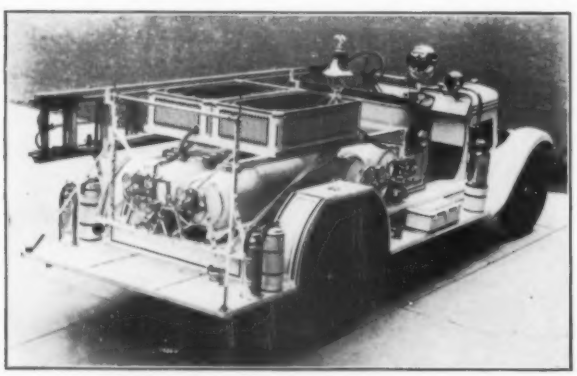
Chiefs in southern California have met in Pasadena to form the Southern California Fire Chiefs' Association, with the object of closer cooperation between southern California fire departments in fighting large fires.

Chief Ralph J. Scott of Los Angeles in addressing the meeting said:

"Unless some concerted effort is made to keep down fires we may soon be in the position of China, with millions of acres of barren land, denuded of trees, and our water supply considerably lessened.

"Our fire menace exists the year around. Burbank has just escaped destruction from a $1,000,000 brush fire, caused by carelessness. Fire Chief Coop of Pasadena would be helpless without the water supply conserved by the brush and forest areas behind the city. I believe that 75 per cent of all fire losses are preventable, and we are going to work together to save our hills and brush-covered areas."

Chief Coop of Pasadena, as secretary, is the officer of the new organization. The fire chiefs will meet periodically to discuss common problems. Other subjects discussed today were requirements for dry-cleaning establishments, gas appliances, and a new type of extinguisher. This was demonstrated at the Los Angeles central station in the afternoon, after the delegates were the luncheon guests of the Pasadena Lions Club.



American-LaFrance and General Motors Company Combine in Manufacture of Small Fire Apparatus Units

Fire apparatus especially designed for urban or rural districts will be marketed jointly by the American-LaFrance and Foamite Corporation and the General Motors Truck Company under the trade name of American-LaFrance-G. M. C. The chassis is manufactured by the General Motors Truck Company and the American-LaFrance makes the rotary pump. They also furnish the ladders, chemical tanks and other fire-fightnig equipment. This type apparatus has successfully passed the twelve-hour test of the National Board of Fire Underwriters.

WHAT SOME OLD-TIME READERS THINK OF "FIRE ENGINEERING"

Opinions from Chiefs and Others Who Have Read the Paper Over Varying Periods of Years, Mostly Long—Great Improvement Noted

THE following letters just received are notable, not only for their uniformly commendatory tone, which naturally is very gratifying to the Publishers of FIRE ENGINEERING, but principally for the long period of years during which many of the writers have been subscribers to this journal:

Chief L. F. Blank, Burlington, Ia.:

"I find great pleasure in reading FIRE ENGINEERING and get a lot of information from it. I congratulate you on your fiftieth anniversary and every wish for a bigger prosperity in the future."

Chief W. C. Green, Concord, N. H.:

"I have been a subscriber of yours for a good many years. Just how many I cannot say but a long, long time. Should I be deprived of FIRE ENGINEERING I should miss it very much."

Chester T. Burr, Brookline, Mass.:

"I am glad to extend to the FIRE ENGINEERING my congratulations upon its fiftieth anniversary. As one of the subscribers of FIRE ENGINEERING I am certain that I can speak the sentiment of all when I say you have become a life time habit with us and that this is one habit we are willing to recommend to others."

Dr. Harry M. Archer, Honorary Deputy Chief and Surgeon, N. Y. Fire Dept.:

"It has been my observation that FIRE ENGINEERING has been a very important factor in improving the fire service throughout the country, placing fire extinguishment on a scientific basis and making fire fighting a real profession."

W. S. Bouton, Manager Municipal Sales, Indian Motocycle Co., Springfield, Mass.:

"I note with a great deal of interest that FIRE ENGINEERING is about to celebrate its fiftieth anniversary. Let me offer my sincere and hearty congratulations on your long and valued protection in the fire fighting field. Surely the results you have obtained must be most gratifying. I wish you at least fifty more years as successful publishers."

Chief Daniel W. Flynn, Great Barrington, Mass.:

"I find FIRE ENGINEERING an up-to-date journal and a great benefit to all firemen that wish to keep up with the changes that have occurred and are occurring from day to day in fire department work. I think it is one of the best papers printed at the present time and I would not be without it."

Chief John C. Moran, Hartford, Conn.:

"I congratulate FIRE ENGINEERING on their 50th anniversary. Fifty years is a long while and I have been reading *Fire and Water* and FIRE ENGINEERING for a good part of that period of time during which many changes have taken place in the fire protection business, many of which have been revolutionary. FIRE ENGINEERING has always encouraged and advanced everything which would improve the service. My very best wishes for many more years of service by FIRE ENGINEERING."

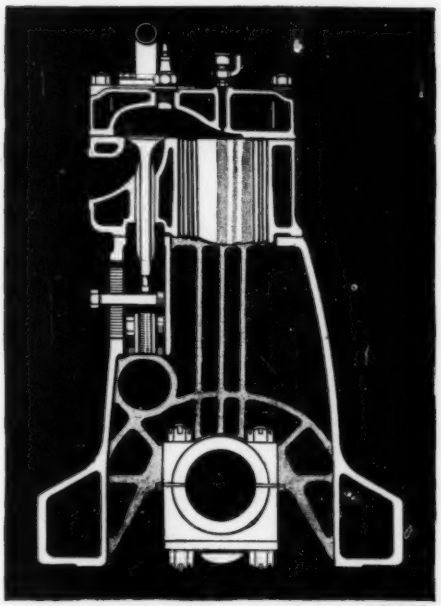
Chief James M. Casey, Cambridge, Mass.:

"We have been subscribers for the FIRE ENGINEERING for a number of years and I consider it a very interesting and instructive magazine for fire chiefs as it contains some very wonderful articles and notes in relation to Fire Fighting. I have always found the officials of the FIRE ENGINEERING willing at all times to answer any question sent them, and I cannot but praise the paper highly."

Joseph F. Woods, Sacramento, Cal.:

"Reference to your subscription files will show my name close to thirty years as a regular subscriber to your publication. Always a leader in matters pertaining to the fire service and advancing with the times, FIRE ENGINEERING of today can be properly termed the fire digest. Those distantly located note in the press the occurrence of fires in distant cities accounts of which are very brief at the most. Invariably FIRE ENGINEERING carries a complete story of such fires, noting the more minute details than would be in the particular home town paper. Articles from the pens of your Messrs. Belknap, Daly and Geiger are always interesting. Friends of mine who have taken promotional examinations for advancement in rank have told me both the older *Fire and Water Engineering* and the present FIRE ENGINEERING have been an important aid to them in reaching the higher ranks in the fire department, enabling them to obtain a high mark in those eligible for promotion. Your publication has always been a clean one. Any criticism or policy advocated has been done in a clean way. This in striking contrast to another publication devoted to fire matters I have in mind that has ceased publication. Best wishes for your continued success."

Waukesha Heavy Duty Six Cylinder Construction



a-723-M

Engines Designed to Stand Up

There is no compromise position. An engine must stand up to all that a fire demands in the way of pumping. Often engines are purposely underpowered so they will stand up but they lack the reserve power needed in emergencies such as every fire company must be ready to meet. No such compromises enter the design of Waukesha "Ricardo" Head six cylinder Fire Pumper Engines. Equipped with a "Ricardo" head they give "valve in the head" power without sacrificing their "Ell" head or valve on the side, simplicity. That is one thing which has contributed to their 100 per cent success in every Underwriters Test to which they have been put.

No ordinary engine design can utilize the advantages of "Ricardo" combustion to the fullest. Much more rigid construction is required—an oversize crankshaft and an extra rigid crankcase. Beside the 3½ inch crankshaft Waukesha Six Cylinder Bus engines have a "Girder" type crankcase—arch ribbed as shown above—reinforced torsionally by tubular longitudinal members on each side and a long vertical slab behind the valve tappets that helps tie the four cross walls together. Such rigidity eliminates objectional vibrations and makes dampeners and auxiliary flywheels unnecessary. Write for Bulletin No. 592 describing this engine more fully.

D-735-L

FIRE EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha 956 St. Paul Ave. **Wisconsin**

Eastern Sales Office *Eight W. 40th Street* *New York City*

MATHEWS

(Reg. U. S. Pat. Off.)

FIRE HYDRANTS

for

DOMESTIC

and

HIGH PRESSURE

Service

NOTE—

The positive waste value.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed
EXTENSION SECTION
readily adapts them to new grades.

VALVES and BOXES
CAST IRON PIPE
(Sand-Cast or "Sand-Spun")
FITTINGS

R. D. WOOD & CO., Phila., Pa.

Blanchard "TIPS"

attach to shut off nozzles. One fire department has 19 of these in service and claim a saving on water loss in 1927, of approximately $100,000,00. They save men from flames, smoke, and extreme exertion. Allow men to stick until fire is out.

Write for circular.

ARTHUR H. BLANCHARD

New England Fire Hose Agent: Boston Woven Hose & Rubber Company,

25 Hampshire St. ***Cambridge, Mass.***

LIGHTNING!

Protect Your Fire Alarm System Against It With

VAC-M Arresters

widely used on Alarm Systems

Send for Details

The National Electric Specialty Co.

Toledo, Ohio

Worcester Alarm Signals

Carry great distances above the din of traffic. Sound is penetrating, but not piercing. These signals are made to meet local conditions. Four sizes. Ask for catalog R-51.

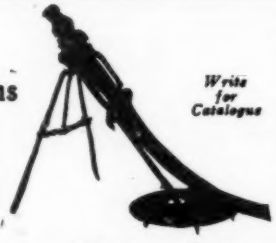
Union Water Meter Company
Worcester, Massachusetts

New York, 50 Church St. Phila., 411 Bulletin Bldg.

UNION

Water Meters - Chronometer Valves
Easy Turning Stops - Pressure Regulators
Presses for Lining Pipe - Alarm Signals

Eastman Improved Platforms and Holders



Write for Catalogue

are indispensable where high pressure service is required. With Eastman equipment any size streams can be easily handled by one man.

Eastman Nozzles and Deluge Sets

are designed by engineers who for over thirty years have specialized in equipment for producing fire-fighting streams that are unsurpassed for solidarity, distance and effectiveness.

Samuel Eastman Co.,
Concord, N. H.

EDDY
Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

Write for the Facts

EDDY VALVE CO.
Waterford, N. Y.

James B. Clow & Sons, Chicago Agents

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

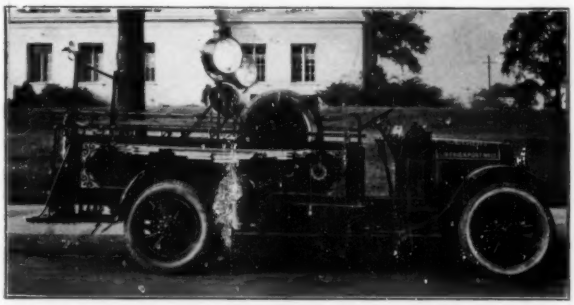
AMERICAN LEGION BUILDS AND MAINTAINS FIRST-AID TRUCK

Post in Monroe, La., Bought Second-Hand Truck and Rebuilt it With Aid of Fire Department Repair Shops—Equipped for Emergencies

IN keeping with the American Legions program of community service the L. B. Faulk Post No. 13, at Monroe, La., decided that they would build an emergency truck and maintain a crew to operate it. The Monroe Fire Department and any other authorities could have the services of this truck.

Last spring, a second-hand truck was secured. It was repaired and painted with the assistance of the Monroe Fire Department repair shops through the courtesy of Chief Frank Roddy. Merchants realizing the great benefit of such a truck to the city and surrounding community, gladly donated tools and accessories for the apparatus.

A Kohler 1500-watt generator was mounted on the front end. A 500-watt spot light and 1,000-watt flood light were installed. These lights can either be used on the stands on which they are



Fire Department Emergency Truck Established by American Legion in Monroe, Ia.

carried or else they can be moved to any point. There are two reels just back of the light stands which carry 500 feet of waterproof cable. Provision is made for cutting in on the city service in emergency cases. The equipment includes all kinds of tools which might be needed. Two grappling hooks are carried on the back end for use in recovering bodies from the water. A stretcher, medical supplies and blankets are carried in the boxes.

The truck is kept at the fire department headquarters and is available at all times for any emergency. By the courtesy of Chief Roddy, one of the men on each platoon drives the truck. He also has made a special call on the fire alarm telegraph system of 4-4 followed by the box signal as the call for the truck. The truck responds to all second alarms and over. Whenever the truck leaves the station, each member of the Legion emergency truck crew is notified by telephone and he proceeds to the location in his own car.

The truck was placed in service last September. It has been called out six times for various emergencies, the last call being from Winnsboro, a neighboring city. A man had drowned and they needed the lights and the equipment for grappling. The Legions crew with several of the city firemen volunteered to work all night on that call.

The idea of this truck originated with Dr. H. E. Carney, who has charge of the present truck. That the people of this city and the surrounding territory appreciate the work of the local post in establishing the truck company is attested by the many letters that L. B. Faulk Post has received.

Dr. H. E. Carney is a practicing physician of this city.

Each of the others in the company is fitted by training or experience to perform some special duty. Residents of the city feel secure in the knowledge that they have both the apparatus and the men fitted for any emergency work.

Sterling, Ill., Awaits Delivery of Pumper—Sterling, Ill, is awaiting the delivery of its new Seagrave 400-gallon pumper.

Dynamite Lowers Forest Fire Loss

Forest fires due to blasting operations in the States of Oregon and Washington have been reduced from 4 per cent of the total to practically nothing in 1927 by the use of electrical blasting. Figures on which the statement is based were supplied by Edward B. Ellis, Field Representative of the Logging Insurance Underwriters' Association for Oregon and Washington. They show what has been accomplished during the last year by the use of electrical blasting methods. The facts covering 1926 and 1927 are as follows:

Loss from fires in 1926 originating in blasting operations started on railroad clearing operations, $20,580; started from choker holes, $124,751; loss from fires originating from other causes, $198,516; total losses, $343,847. Percentage of loss due to fires from blasting, 42 per cent; percentage of loss due to other causes, 58 per cent.

Loss from fires in 1927 originating in blasting operations, none; loss from fires originating from other causes (estimated), $100,000; total losses, $100,000. Percentage of loss due to fires from blasting, none; percentage of loss from fires due to other causes, 100 per cent.

These figures are for losses, of camp building, logging equipment and felled timber, but do not include losses on standing timber.

It was stated that practically all forest fires started by blasting operations are caused either by the fire spitting from the free end of the fuse, a lighted match dropped by the blaster after lighting the fuse, or a piece of smoldering fuse thrown into the underbrush by the blasting. Logging operators generally have come to accept this view.

Many insurance companies, after independent investigations, concluded that this matter was of sufficient importance to warrant special consideration, and as a consequence many of the insurance policies written this year to cover forest fire losses carry a provision that the insurance company will not be liable for loss from fire originating from blasting operations where fuse and caps are employed. This, of course, has tended to reduce the number of blasting operations with caps and fuse.

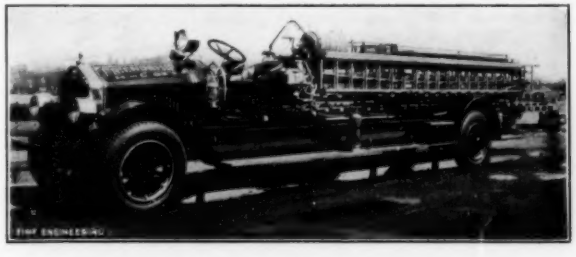
Chief Niethammer Re-Elected

John G. Niethammer, member of the Rainbow fire company, has been re-elected as head of the fire department for the fourth consecutive term in Reading, Pa. He was chosen by a four to one majority.

There was a great demonstration as soon as the votes were counted. Many companies had engaged bands of music to celebrate the victory which was self evident. A parade was formed and the cheering continued until the early hours of the morning.

With the exception of a short period spent in Lancaster, Mr. Niethammer has been a resident of Reading all his life. He has been a member of the Rainbow company since 1883 and its treasurer for thirty-six consecutive years. During the past year, he was a vice-president of the state association.

Cherry Valley, Ill., Orders Fire Apparatus—Cherry Valley, Ill., has purchased fire apparatus costing $3,500.

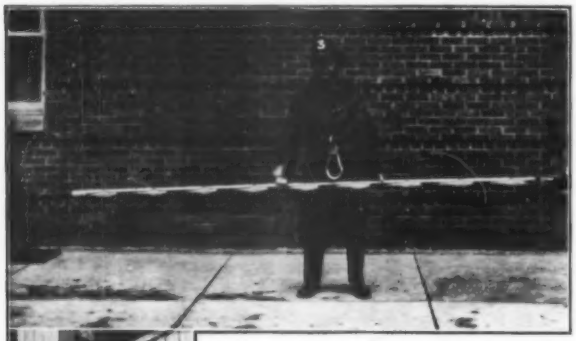


Carlstadt, N. J., has City Service Truck

The apparatus illustrated herewith was recently delivered to the fire department of Carlstadt, N. J. It is a 6-cylinder city service truck built by the Maxim Motor Company.

Pompier Ladder Design Improved

While many fire department appliances and much equipment have been improved during the past number of years, the



pompier ladder which forms so important a tool in rescue work, has remained the same during the past twenty-five years. Peter Pirsch of the firm of Peter Pirsch and Sons Company, Kenosha, Wis., has invented a folding pompier ladder and an application has been made for a patent. In the past, many companies objected to carrying pompier ladders on the apparatus as they require a great deal of space. With the folding feature, the device now takes up no more room than the ordinary pike pole. This form of ladder has proven of immense value where it was desired to reach a window beyond the reach of a ladder or where it was desired to operate independent of the large trussed ladders.

In use, the ladder is hooked onto a window sill and the fireman climbs up. When he has reached the sill, he disengages the hook and hangs the ladder from the next window sill above. Many persons have been rescued with the aid of this implement.

Fire Survey Made of Boston, Mass.

(*Continued from page* 1316)

prevention inspections the lack of cooperation has materially hampered the work of the fire department bureau.

"This lack of co-operation is also noticeable in investigations of arson. During 1926, Boston had 31 fires of reported as probably of incendiary origin, and 544 of unknown origin. Several of the large fires were declared by chief officers to have had suspicious features. Nevertheless the prosecutions and convictions for arson in Boston during this period were practically negligible. Investigation of fires by the fire department has apparently been resented by the fire marshal's office, whose investigating staff is inadequate to properly cover all suspicious fires with the promptness necessary to combat this evil of incendiary fires. While it is probably a fact that arson investigations can be made and such offenses prosecuted better by the state fire marshal's office, it is believed that such investigations should be commenced as soon as possible, and that the co-operation of fire department officials might with advantage be accepted by the fire marshal's office.

"Where such conditions with respect to incendiarism prevail it is essential that insurance companies carefully watch the policies written to prevent over insurance. It may be noted that the greater number of large fires occurred between 8 o'clock in the evening and midnight. As the streets at these hours are comparatively free of traffic, it would seem that traffic had no considerable part in affecting the fire loss as yet. However, traffic congestion in the narrow streets of Boston's congested value district presents an extremely serious condition as regards fire department response and facility of operation at fires. Apparatus has frequently been delayed, and in at least one instance one company failed to reach the fire, due to traffic congestion; the serious possibilities of such delays need not be mentioned.

"Although the co-operation of the police is reported as good, the parking and traffic situation seems almost out of hand. Parking restrictions are prescribed for many of the downtown streets, but do not include several streets in the wholesale leather and warehouse districts nor the territory east of Winthrop Square, districts in which many of the big losses have occurred. Unbroken lines of parked automobiles were noted on most of the streets in these sections, and on several where parking was prohibited.

"Summarizing, it is felt that, although the large fire loss in Boston may be attributable in a small part to the decline in efficiency of the fire department, it is much more affected by the prevailing structurally weak type of buildings housing large and valuable stocks of merchandise of a nature unusually susceptible to damage by fire and water. Much of the loss was from water damage directly due to a lack of suitable supervisory service on sprinkler systems to give prompt notification of water flow. Many of these old buildings which by all logic should be equipped with automatic sprinklers, are not so protected, due to lack of municipal requirements and the neglect of the State Fire Marshal to prescribe sprinkler regulations. Where standpipes are provided, they so frequently are unsuited for fire department use that the department makes little use of any standpipes."

HARRY BELKNAP.

Boston Has New Hose Wagons

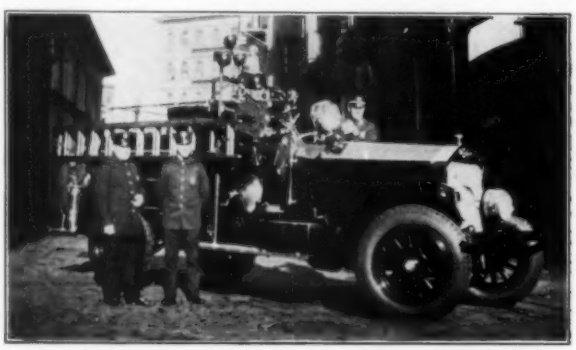
Two new hose wagons have been delivered in Boston, Mass., by the American-LaFrance Fire Engine Company.

The machines are the type 75 combination hose and chemical cars with six-cylinder engines and with a capacity for 1,200 feet of 2½ and 3-inch cotton rubber lined hose. The equipment includes a forty-gallon chemical tank with 250 feet chemical hose, one twelve-foot roof ladder and one twenty-foot extension ladder.

There is a Morse wagon nozzle of 1,100 gallons a minute capacity. A powerful electric search light is mounted on the front of the apparatus and the wheels are equipped with heavy duty pneumatic tires.

Engine Company No. 26 has one of the new hose wagons. Similar wagons have been furnished to Engine companies No. 35, No. 51, No. 49, No. 20, and No. 19. All triple combination pumpers are being replaced or altered so that engine companies will be two unit pieces, equipped with motor pumper and combination hose and chemical car.

The hose wagon of No. 26 has been fitted with the "Roto-Rays," revolving fire department signal to distinguish the truck



New Hose Wagon for Engine Company No. 26, Boston

This apparatus is equipped with the "Roto-Rays," signal. All engine companies in the future will operate as two-piece companies.

as fire department apparatus. This is one of the busiest companies in the down town "high value" section of Boston.

Commissioner Eugene C. Hultman and Chief Sennott are always keen to obtain the latest and most modern equipment.

HARRY BELKNAP.

Jackson, Mo., Purchases Apparatus—Jackson, Mo., has purchased a 350-gallon pumper mounted on a two-ton Dodge chasis.

Point Place, Kans., Has Open House—The public were invited to inspect the new Point Place, Kans., fire station. The erection of the fire station was financed by public subscriptions.

BRAXMAR
BADGES

have been the recognized standard for fire departments for almost 50 years. Used everywhere. More than 900 designs. Send for illustrated catalog and prices.

C. G. BRAXMAR CO.
242 W. 55th St., N. Y. C.

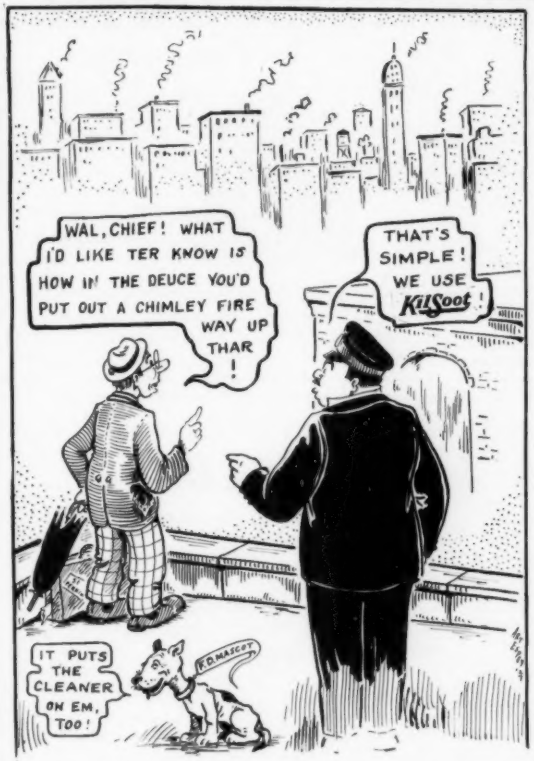
COREY Hydrants as manufactured by "Rensselaer" are being used to fight fire in every State of the Union. Made of the very best material and workmanship.

"The Rolls-Royce among Fire Hydrants"

RENSSELAER VALVE CO.,
TROY, N. Y.

"Pirsch" Builds Complete Line of Motor Apparatus
Let Us Submit Bids on Your New Apparatus
Catalogue No. 16 Now Ready! Send for it.

PETER PIRSCH & SONS CO.
Since 1857
Kenosha, Wisc.


WAL, CHIEF! WHAT I'D LIKE TER KNOW IS HOW IN THE DEUCE YOU'D PUT OUT A CHIMLEY FIRE WAY UP THAR!
THAT'S SIMPLE! WE USE KilSoot!
IT PUTS THE CLEANER ON EM, TOO!
F.D. MASCOT

KilSoot
Trade Mark

"When the Visiting Fireman from 'The Styx' Blows Into the Village of Manhattan, if He's a Regular Fire Fighter, He Looks Up One of the 'Big Boys' and Goes Back Home Chock Full of Real Information."

But you don't have to come to New York to learn about the greatest American method of fighting chimney fires.

KilSoot is the most effective extinguisher and fire preventative known to modern science.

KilSoot solves your chimney fire problems and you don't have to ask the Council for a special appropriation to purchase.

One 50c package of ***Kilsoot*** does the trick and you don't have to touch your hand to a ladder or any other piece of equipment.

KilSoot is effective—economical—clean—occupies very little space and the weight is of no consequence and, most of all, it costs so little.

Save your big apparatus for the big jobs.

Let KilSoot take care of the chimney fires!

Write us about our special offer to Fire Departments and our Plan of Servicing at a neat profit to yourself.

KILSOOT CHEMICAL COMPANY
1834 Broadway, New York, N. Y.

(Make KilSoot Standard Equipment)

We want local Fire Department Distributors

SOUTHWORTH
Quality Fire Apparatus

300 to 750 Gal. Triple Combination Pumpers.

City Service Ladder Trucks, Combination and Chemical Cars.

Recent Sales
Harrison, Maine
300 Gallon Pump

Waterville, Maine
One Tank Combination

Charlestown, N. H.
500 Gallon Pump

SOUTHWORTH MACHINE CO.
Fire Apparatus Division
52 Sagamore Ave., Chelsea, Mass.
Factory: Portland, Maine *Tel. Chelsea-2105*

BADGES
of Every Description

QUALITY GUARANTEED
Right Prices
Prompt Delivery

Write for latest catalogue and price list

EVERSON-ROSS CO.
88 Chambers St., New York

JOHN H. CLAY, INC.
1320 Ridge Ave., Philadelphia, Pa.
Established 1864

Clay Automatic Door Spring Devices for fire stations save valuable minutes in getting to fires. Write for details.

Triple Combinations
300-350 and 500 Gallons Capacity

Light and Heavy Hook and Ladder Trucks.
Miscellaneous Fire Fighting Equipment.
Fire Department Ladders.

Write us when interested

COMBINATION LADDER CO., Inc.
381 Fountain St. Providence, R. I.

Every Fire Dept. Officer Should Have
These Three Books—*Packed Full of Practical Information*

Questions and Answers for Battalion and Deputy Chiefs

by Geo. J. Kuss, Former Deputy Chief N. Y. F. D., and Fred Shepperd, B. Sc., M. E., Managing Editor, FIRE ENGINEERING. It contains 210 pages of invaluable instruction for progressive fire department officers, and is indispensable for Captains, Battalion and Deputy Chiefs and other officers studying for promotion.

It contains questions from promotional examinations throughout the country, with answers by Deputy Chief Kuss, (N. Y. F. D.) and Fred. Shepperd.

Price $2.00—postpaid $2.15.

Questions and Answers for Lieutenant and Captain

by George J. Kuss, Former Deputy Chief N. Y. F. D., and Fred Shepperd. A 290-page book of promotional questions and answers for candidates for lieutenants and captains.

It includes questions asked at promotional examinations in practically every city in the country where civil service examinations are held, with answers by Chief Kuss and our Editor.

Price $2.50—postpaid $2.65.

Simplified Fire Department Hydraulics

By FRED SHEPPERD, B. Sc., M. E.

A brand new book describing in a simplified method all of the rules and formulæ required in the solution of fire department promotional examinations questions in hydraulics.

Also contains nearly 200 problems on hydraulics asked in examinations in large departments throughout the country. 170 pages fully illustrated.

Price $2—postpaid $2.15.

Use This Convenient Coupon to Order Your Copies Today.

Book Department
FIRE ENGINEERING
225 West 34th St., N. Y. C.

Please send me the books I have checked, for which I enclose money order for $———.

Questions and Answers for Battalion and Deputy Chiefs ☐
Questions and Answers for Lieutenants and Captains ☐.
Simplified Fire Department Hydraulics ☐.

Name ..... Rank .....

Address ..... Date .....

FIRE DEPARTMENT ACTIVITIES

Luzerne, N. J., Will Have New Station—Construction has started on the new fire station for Luzerne, N. J.

Burton Resigns as Fire Chief of Osceola, Ia.—C. S. Burton, chief of the Osceola, Ia., department, has resigned.

Vallejo, Cal., Has New Siren—The Vallejo, Cal., council has formally accepted its new siren.

Onawa, Ia., Receives Chemical Car—A Nott chemical car equipped with two forty-gallon chemical tanks has been delivered to Onawa, Ia.

Union City, N. J., to Have Fire Alarm—A contract has been let for the installation of a new police and fire alarm system.

Clarksburg, W. Va., to Erect Fire Station—Clarksburg, W. Va., will soon erect a new fire station. Plans have been drawn for the building that is estimated to cost $50,400.

Auburn, Me., Department Completely Motorized—With the arrival of a new ladder truck, the fire apparatus in Auburn, Me., has been completely motorized.

Coal Township, Pa., to Have Fire Alarm System—Bids have been invited for the construction of a fire alarm system for Coal Township, Pa.

Galveston, Tex., to Vote for Fireboat—On December 10, Galveston, Tex., will vote on a $200,000 bond issue that will be used to finance the construction of a fireboat.

McHenry, Ill., Receives New Pumper—A Peter Pirsch pumper has been delivered to McHenry, Ill. Members of the American Legion assisted in raising the $6,500 for the purchase.

Portland, Ore., Plans New Stations—Specifications have been drawn for the new fire stations which are made possible by the floating of a bond issue last year.

Hightstown, N. J., to Have New Fire Station—The corner stone has been laid for the new fire station being erected in Hightstown, N. J.

E. Providence, R. I., to Purchase Fire Apparatus—East Providence, R. I., has authorized Chief Arthur Griswold to purchase a 1,000-gallon pumper for March 1, 1928 delivery.

Randolph, Me., Raising Funds—Several entertainments will be held by the Randolph, Me., fire department to raise funds for the purchase of fire apparatus.

Relief Association Formed at Waynesburg, Pa.—A relief association has been formed by the volunteer firemen of Waynesburg, Pa. Such organizations are being formed as auxiliaries to the various fire companies in the state.

Newcastle, Ind., Inspects Fire Defenses—An inspection has been made of the fire-fighting equipment of Newcastle, Ind. The fire alarm system was found to be run-down and twenty-one boxes were found to be without glasses.

Louisville, Ky., Department Expected to be Reorganized—It is expected that the Louisville, Ky., department will undergo a reorganization as the result of the victory of the Republican party.

Avery Heads Box 41 Association—Henry S. Avery was elected president of the Box 41 Association of Lynn, Mass., at their annual meeting and dinner. Chief Edward E. Chase of Lynn was among those present.

Massachusetts Fire Chiefs to Meet in Watertown—The December meeting of the Fire Chief's Club of Massachusetts will be held in Watertown at the factory of the Hood Rubber Company.

Kokomo, Ind., Firemen to Aid Poor—All three fire stations in Kokomo, Ind., are making plans to distribute clothing to the poor of the city. Last year the firemen were very successful in carrying out this work.

Anderson, Ind., May Purchase Apparatus—Chief C. G. Alford, of Anderson, Ind., has asked that the city issue $68,000 bonds to finance the purchase of needed fire apparatus and equipment. The chief said that such an amount is necessary to place the city in a position to cope with a major size fire.

Woburn, Mass., Considers Better Plant Protection—A special meeting was called of the Woburn, Mass., city council to consider means for providing better fire protection to the patent leather manufacturing plants. Recommendations were made that a 12-inch main be laid to replace the present 6- and 4-inch mains.

Fire Station Has Bear Visit—A tame bear in Bangor, Me., broke away from its routine existence and decided to go calling. It dodged through the door of the Central Fire Station and hid under a pile of ladders. The owner came and enticed the bear out with an ice cream cone.

College Men Favored for Fire-Fighters—Chief Goff of Oklahoma City, Okla., favors the employment of college men for fire-fighters. He believes that the men who know how to intelligently handle an emergency, how to figure on strength of materials and know building construction, will prove valuable as firemen.

They Got What They Wanted—A delegation of mothers from a section in Des Moines, Ia., unprotected against fire, appeared before the council to urge that the children of the section be given fire protection. The mothers won out. The head of the zoning commission assured the women that the new fire station would be erected in that section of Des Moines.

Speed Trophy Presented in Grand Rapids, Mich.—Many public officials and prominent residents attended the dinner at which the *Grand Rapids Press* trophy was presented to Engine House No. 5 in Grand Rapids, Mich. Battalion chiefs from other stations were invited to attend the dinner that was arranged to honor the winners.

Portland Fire Band Scores Hit—The band of the Portland, Ore., fire department which has been appearing on the Orpheum circuit at Vancouver, B. C., has been very well received. A banquet and a parade were given in their honor by the Vancouver department and fire prevention messages were displayed in all the store windows.

New Orleans Expects More Pumpers—Four new pumpers have already been delivered to New Orleans and two more are expected to be delivered soon. In all nine pumpers were ordered, each with a capacity of nine hundred gallons a minute. The pumpers received have been placed in firehouses near the business section.

Portland, Ore., on Lookout for Arsonists—Four men of the Portland, Ore., arson squad, working in pairs on twenty-four hour shifts have been able to cut down the number of suspicious fires in the city. A detailed report of every fire is made on indexed cards and whenever, necessary, photographs are taken of the fire scenes. Often these pictures are used for evidence in court.

Bluefield, W. Va., to Charge for Outside Calls—Those living outside of the Bluefield, W. Va., city limits will have to pay $100 for each fire call. According to the city manager it costs $406 each time that the department is called out. The proposed plan is for each town desiring fire protection to deposit a check for $100 with the treasurer. When an alarm has been answered, it will be necessary to deposit another check for a similar amount.

Eight Firemen Injured in Juanita, Pa.—While attempting to swing clear of a trolley the rear end of a truck in Juanita, Pa., failed to clear the trolley and eight firemen were badly injured. The fire to which the men were responding burned to the ground. Passing motorists removed the injured firemen to the hospital for treatment.

Great Falls, Mont., Firemen Prepare for Xmas—Continuing the activity that the Great Falls, Mont., fire department have been carrying out for the past seven years, not a child in Cascade county will be forgotten this year by the firemen, self-styled Santa Claus assistants. Chief A. J. Trodick stated that the department is working with the Rotary Club and about five hundred children will be provided this year with toys that have been doctored by the firemen.

Work Starts on San Pedro, Cal., Fireboat—Work has been started on the keel for the fireboat being constructed for San Pedro, Cal. The boat will be able to travel twenty miles an hour and will cost $12,000. It will be forty feet long by ten feet beam. It is expected that the boat will be completed by the end of January. There will be two pumps each capable of delivering 250 gallons per minute and a foam outfit for generating 500 gallons of foam a minute. In addition carbon dioxide extinguishers will be placed in the boat.

PROPOSED IMPROVEMENTS

Bucyrus, Crawford Co., Ohio.—City Council passed an ordinance declaring the purchase of a pumper for the fire department necessary. Safety Director Gus Goldsmith was authorized to advertise for bids for a pumper not to cost over $12,500.

Bristol, Washington Co., Va.—Plans are being discussed for the construction of a new fire station for the Bristol Fire Co. O. L. Cross, Chief.

Poughkeepsie, Dutchess Co., N. Y.—National Board of Fire Underwriters recommended the installation of a new fire alarm system, purchase of a pumper, a service truck and the appointing of a large number of new firemen. Chris W. Noll, Chief of Fire Dept.

Fallbrook, San Diego Co., Calif.—A committee was appointed by L. C. Ellis, president, Chamber of Commerce to organize a volunteer fire department, according to reports.

Rowayton, Fairfield Co., Conn.—The Rowayton Hose Company is making plans for the purchase of new apparatus, according to reports.

Springfield, Greene Co., Mo.—The erection of a new fire station near Nicholas St. and Kansas Ave., has been recommended to the city council. New apparatus will be purchased for the new fire station.

Fire Apparatus Salesman Wanted

Wanted: an experienced responsible fire apparatus salesman for good territory. Address: Box 148, % FIRE ENGINEERING, 225 West 34th St., New York, N. Y.

12-28

FOR SALE

White Triple Combination Pump, Chemical and Hose Truck

This truck has been used as a demonstrator but has never been in active service. It is a highly efficient piece of fire apparatus, equipped with a 40-gallon Champion chemical tank, a 600 gallon Hale pumper, 250 feet of chemical hose with nozzles, etc. The truck is powered with a White 16 valve motor and is in A1 condition. **Can be Purchased for the Bargain Price of $5,000.** Address inquiries to THE WHITE COMPANY, 930 Commonwealth Ave., Boston, Mass.

12-28

Recovers $3,735—Offered a Cigar

Fireman Edward F. Martin of New York, a member of H. & L. 26, has received a $100 reward for his honesty in turning over to his superior officer $3,735 which he found in a pile of kindling wood in the bottom of a clothes closet. The fire broke out in a Harlem tenement early on the morning of September 13th, last. The money was recovered by the owner, Nicola Arico, a night watchman who was away from home at the time of the fire. The money remained unclaimed at Police Headquarters until December 13. The property clerk of the police department turned the money back to the owner when he claimed it. Martin, who was present, was offered a cigar by Nicola, who speaks no English. Martin refused the gift.

Fire Commissioner John J. Dorman in handing Martin $100, explained to him that it was with the best wishes of Honorary Deputy Chiefs R. H. Mainzer and M. L. Neumoegen, who read of the occurrence in the newspapers. Commissioner Dorman told Martin that the honorary chief officers were actuated more by the approaching Christmas spirit than any other reason for rewarding him for his personal integrity. The fire commissioner then added—"Acts such as yours are not the exception, however. Every day and night of the year somewhere in this city, firemen recover money in the ruins of fires and make proper disposition of it to either their superior officers, to the police department or to the owners of the property. In congratulating you, I do not want the impression to prevail that firemen have to be rewarded for being honest. They are presumed to be honest and I have found they generally are true to their trust."

WM. J. DALY.

Boy Fired Barns in Little Falls

Confessions made by a fifteen-year-old boy in Little Falls, N. Y., cleared the mysterious origin of many barn fires in that section. Because of his age he can only be held on the charge of juvenile delinquency.

The boy would fire a barn and then return with the firemen, sometimes riding on the fire apparatus. He said that the excitement prompted him to do these things.

On November 11 he touched a match to some straw in a barn. He went to one of the main highways and then jumped on the fire apparatus when the company rushed to the fire. On November 17 he set fire to another barn by throwing a lighted match on a load of hay in a wagon shed. He later helped to remove a horse from this barn. A third fire was started on November 21 by throwing a lighted cigarette into some hay. The fourth blaze was started on December 1 by throwing a lighted cigarette among some rags.

It was believed for some time that the barns were fired by some incendiary. However, following a fire that he had started in a coal yard, police authorities had evidence that pointed to the youngster's guilt. A confession followed.

Woodhouse Started in 1886

In the page advertisement of the Woodhouse Manufacturing Company appearing on page 1273 of the December 14th issue featuring the establishment of the company in 1885, a clipping of their first advertisement was reproduced. The statement that the copy appeared in *Fire and Water* in 1886 was inadvertently omitted.

It is a pleasure to give this recognition to the long period of years in which Mr. Woodhouse and his company have been identified with the fire field and FIRE ENGINEERING.

Wounded Soldier Collects Badges

"John Barker, Central Fire Station, Greensboro, N. C.," he wrote on a pad with pencil when he called at Fire Headquarters in New York City.

He wore a Donnelly turn-out coat, a fireman's uniform and came prepared with boots. He was totally deaf and dumb from injuries received in the Argonne Forest when he served with the 308th Ammunition Train. This ex-soldier and fireman served as corporal with the 81st "Wild Cat" division and was gassed. He came armed with a ream of credentials and testimonials from fire chiefs in hundreds of towns and cities. The hobby of this man was to collect old badges and he had a large number with him.

With the aid of his pencil and pad, he carried on a rather lengthy conversation.

"I've travelled 3,500 miles and the badges that I have collected became too heavy to carry with me. I shipped them home. I would give anything to be a fireman in New York.

"Why?" I wrote on his pad.

"Lots of excitement, plenty to do—and all the time."

Chief James Cotter is Pensioned

Troubled by high blood pressure and heart disease, Chief James Cotter of Council Bluffs, Ia., acting under advise from his physicians, has requested that he be permitted to retire from the service.

With the exception of two years, Chief Cotter has been in the fire department since 1889. He served for several years and then was absent for two years and seven months. He rejoined the department in 1898.

James Cotter was appointed chief in 1919, succeeding Frank Hitchcock.

Recently he was forced to bed because of his high blood pressure. He received orders from his doctors that he should not take any chances with his health—the application for retirement followed.

During the time that Chief Cotter was ill, Assistant Chief John Oliver has been acting head. It is believed that he will be promoted to fill the vacancy. The Civil Service Commission have just appointed Mr. Oliver as chief of the department as of January 1, 1928. Chief Cotter will retire on that date.

CONVENTION DATES

May 7-10, 1928—NATIONAL FIRE PROTECTION ASSOCIATION (International). 32nd Annual Meeting, Atlantic City, N. J. Secretary, Franklin H. Wentworth, 40 Central Street, Boston, Mass.

May 10-11, 1928—ARIZONA STATE FIREMEN'S ASSOCIATION. 5th Annual Convention, Bisbee, Ariz. Secretary, Chief W. J. Nemeck, Douglas, Ariz.

June 19-21, 1928—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 39th Annual Convention, Kingston, N. Y. Secretary, Chief Chris. W. Noll, Poughkeepsie, N. Y., Fire Department.

Sept. 18-19, 1928—IOWA FIREMEN'S ASSOCIATION. 51st Annual Convention, Independence, Ia. Secretary, E. E. Parsons, Marion, La.

Oct. 22-24, 1928—KANSAS STATE FIRE CHIEFS and FIREMEN'S ASSOCIATIONS and WOMEN'S AUXILIARY. 13th and 42nd Annual Conventions and 3d Meeting, respectively, Liberal, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

New Orleans, La., to Re-Organize Fund—Steps are to be taken in New Orleans, La., to establish the pension fund of the fire and police departments on such a basis that it will not be possible to fall to the danger line of depletion. It was suggested that an actuary be employed to study the pension fund plan and the requirements for administering it.

MAXIM FIRE APPARATUS

If your apparatus is Maxim-built it will prove dependable and reliable at all times.

Complete information upon request.

MAXIM MOTOR COMPANY, Middleboro, Mass.

Metropolitan Sales Agents:

The Woodhouse Manufacturing Co., 156 Chambers St., N. Y.

New Victor Gas and Fume Mask

Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

Full Line Fire Dept. Supplies and Equipment.

New 43 Edition Catalog on Request

The Woodhouse Mfg. Co., Inc

156 Chambers St., New York

D. A. Woodhouse, Pres. and Gen. Mgr. George J. Kuss, Vice-Pres. and Treas.

HALE PUMPS

LONGER effective life, higher efficiency and greater freedom from trouble may be had by using Hale Dreadnaught Fire Pumps.

HALE FIRE PUMP CO.

Conshohocken, Pa.

HAHN

Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

Hahn Motor Truck Co.,

Hamburg, Pa.

MORSE

FIRE BOAT EQUIPMENT

Invincible and Callahan Nozzles

Fire Department Supplies

are in use throughout the country and giving unsurpassed service.

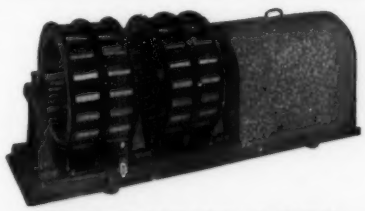
Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.

You will find that it pays.

Write for Catalog

Andrew J. Morse & Son, Inc.

221 High St. Established 1837 Boston, Mass.



THE DENVER SIREN

Now used in 43 of the United States, Canada and abroad.

Motor driven on any electric circuit.

Write for Special Bulletin

Hendrie & Bolthoff Mfg. and Supply Co.

Denver — Colorado

6 Patented Features

ERICK SIREN

Thorough Weather Protection

Erick Sirens do not clog up. Snow and ice cannot enter and stop sounding rotor. Completely protected and sheltered from outside influences.

Features That Prove Supremacy

Instant Alarm

Every telephone is a fire alarm station, permitting operator to sound alarm instantly, giving your fire department a chance to get the jump on the fire.

Universal Sound Projector

The Erick Sound Rotor and Deflector is built to instantly send a Fire Alarm.

Our Free Trial offer is made in all sincerity. We welcome your inquiry.

ERICK ELECTRIC SIREN CO.

STATE AND FILLMORE AVE., ST. PAUL, MINN.

THE INTERNATIONAL LINE includes Speed Trucks for 1½, 1½, and 2 ton loads and Heavy-Duty Trucks for loads up to 5 tons. Municipal equipment available for every purpose. 136 direct Company-owned branches in the United States.

INTERNATIONAL HARVESTER COMPANY of America [*Incorporated*]

606 S. Michigan Ave. Chicago, Ill.

INTERNATIONAL HARVESTER COMPANY TRUCKS

FALSE ALARMS

—Drawing by "Art" Espey

Old Timer to Rookie: What're you listenin' on that phone for?

Rookie: The Skipper told me never to leave anyone alone "on the line."

PRIVATE INFORMATION

The volunteer fire company had lined up waiting for the signal to start the annual department parade. One of the men became fidgity.

"Look, here, why don't you stand still? What are you scratching yourself for?"

"Well buddy, I gotta scratch myself. No one else knows where it bites."

SHE WAS DEAD

He had choked her; he had killed her. There could be no doubt about it. He listened to her dying gasp; she was still—cold—cold as the hands of Death.

Yet in his fury he was not convinced. He stepped on her—stepped on her again with big, heavy foot. A faint gasp—was she groaning? No, she was still dead.

So he waited in the fire house for some one to take him to the fire. The engine of his car was dead.

A WELL DONE JOB

Fire broke out in the kitchen of a woman who was very fussy in her ways. It did not take the men long to extinguish the blaze but as one fireman was leaving the woman stopped him and said in very emphatic tones:

"Do you mean to tell me that you are going to leave my house in this condition after you have turned everything topsy turvey?"

The fireman was awe struck. When he regained self composure he asked the woman if he could use her phone. He called up a friend who specialized in all kinds of pets.

"Say Tom, send me thirty thousand cockroaches at once."

"What in heaven's name do you want with thirty thousand cockroaches?"

"The lady of this place wants me to leave it in the same condition that I found it."

FAR FROM CHEAP

Contrary to his wife's wishes, a southern Negro had joined a volunteer fire company. As is usually the way in such matters, that is the time that things happen. This Negro was down with the influenza after fighting a fire all night long. An old colored doctor was called.

"What I gwine git him?" asked the wife.

"Give him a couple of good doses of whiskey."

"How much am that gwine cost?"

The doctor told her the price of a quart of good whiskey.

"I ain't gwine buy him that. I can bury him cheaper."

CONDITION IMPROVED

Donnelly's case was most pitiful. Just a week ago, he was happy and the wit of the station—but after the Forest street fire he had to be taken away to an insane asylum. Something hit him and the shock made him mentally unbalanced. He raved all the time that he was President Coolidge.

One of the boys went to the hospital to see how Donnelly was getting on. He returned and reported that Donnelly was much better.

"What makes you think that he's better?"

"Well he no longer thinks he is president. I spoke to him and he said he was Vice-President Dawes."

LOST BY THE WAY

In a paid fire department all of the firemen return after a fire on the apparatus with which they responded. In a volunteer fire department so many respond that a large number of them must find their way back to quarters as best they can.

And so a village official noted a man with rubber boots and coat and a fireman's helmet walking down the road and then retracing his steps.

"What's the matter?"

"I drank some cider—now I'm lost," replied the fireman.

"Well, you musn't take it so hard."

NOT IN HIS DIET

The ladder company was gathered around the luncheon table. It was a rare treat to see this ladder company in action with the implements that the restaurants called, "silver." There was a sound of crunch, crunch.

"Look here, Bill," remarked one, "it is against the rule of etiquette to crumble your crackers in the soup."

"Say, what do you think I'm eating—crackers or etiquette?"

ASK DAD, HE KNOWS

Proud fathers hate to see their youngsters adopt their bad habits. And so too with a fireman who possessed so fine a vocabulary of cuss words that his fellow-fireman gave him credit for being able to swear for five minutes without using the same word twice. But the fireman forgot all this, when he read the note that his youngster brought home from school.

"So the teacher caught you using a bad word and punished you."

"Yes, and she asked me where I learned it."

"What did you tell her," asked the fireman anxiously.

"I didn't want to give you away, Pa, so I blamed it on the parrot."

"What kind of a fire department chauffeur would Fred make?"

"Well, if Fred had the fire apparatus he would make a drunken driver."

JUST A COMPARISON

If only they sold fire insurance like some of the bar tenders used to talk to their best friends during office hours.

"No, Jim, you've had four fire insurance policies already, and that's enough. I never believe in selling a man that's had plenty. You've got fire, tornado, wind and riot insurance, and that's all that you can carry. I do a respectable business, specializing in family trade. If a customer comes to me and looks as if he was pretty well loaded with insurance, he can't get any more from me. He can go to some other place if he wants to, but I've made it a rule not to sell too much to fellows having a tough time to get along.

"Go on home now, Jim, and some other day, old pal, when you're feeling better, I'll serve you. Wait'll you get over the policy brannigan you've got now, and I'll play along with you."

An end to a story: "I didn't know that it was in gear."

—Drawing by "Art" Espey

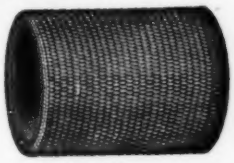
Real Fire Spoils Banquet

It was a great banquet that the Shrine Booster's Club of Minneapolis staged. Everything worked in accordance with the plans—but—ah yes, there is a but to the story. Helmeted firemen climbed in through the window to the banquet room, dragged in their hose, set their axes down and gave a demonstration of their work. And while a talk was being given on fire prevention work, the firemen sat down and started to eat. A special fire alarm system was installed in the dining room. Clang, clang, went the bell. Down went the firemen, pieces of pie in hand. A call had come on a suffocation case. That was the part of the banquet that the Shriners had not figured on. But all in all, not a piece of pie was abandoned.

Quaker Fire Hose with Solid Woven Cover

A strong circular-woven multiple jacket and a rubber tube specially made to resist high pressures, give Quaker Fire Hose its strength to withstand the most severe tests encountered in fire fighting.

Quaker Hose is flexible and durable, and is thoroughly satisfactory in every way. One trial will convince you.



QUAKER CITY RUBBER CO.

Manufacturers of
Daniel's P. P. P. Rod Packing

Main Offices and Factories
Wissinoming, Philadelphia

Branches: New York Chicago Pittsburgh San Francisco

S & M Drum Type Safety Side-Lite

S & M Spot-Lite

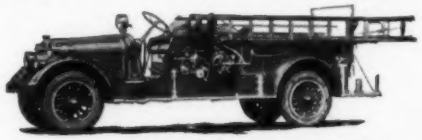
S & M SPECIAL LITE-ING EQUIPMENT FOR FIRE APPARATUS

For years the recognized standard of quality illumination for fire apparatus—S & M Search-Lites, Head-Lites, Red Safety-Lites, Red Safety Side-Lites, Tail-Lites, Oval-Lites. S & M auxiliary lights are coming into general use—"For Safety."

Write for catalog.

S & M LAMP CO., Inc.
118 W. 36th St.,
Los Angeles, Cal.

"UNIVERSAL" MOTOR FIRE APPARATUS



Every type of standard equipment in any combination to suit your requirements

Write for free copy of "Reliable Fire Apparatus"

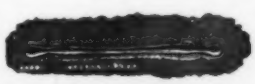
W. S. NOTT COMPANY

Established 1879
201 N. 3d St., Minneapolis, Minn.

BI-LATERAL FIRE HOSE

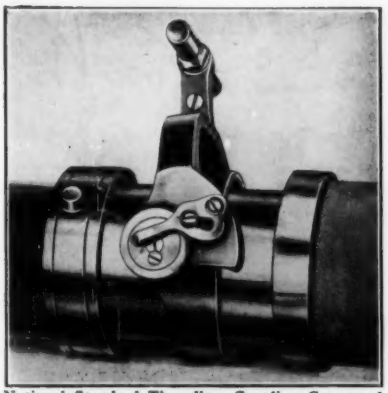
THE BI-LATERAL FIRE HOSE CO.

230 West Randolph St.,
Chicago, Ill.



The City of Wheeling just purchased 5,000 feet of Bi-Lateral Fire Hose coupled with rocker lug couplings. This city purchased 5,000 feet last year and it is believed that as soon as their department is equipped with this improved construction in fire hose they will be able to cut their hose expense to less than half of what it has been previously. Let the BI-LATERAL FIRE HOSE COMPANY tell you why this may be true.

Fatal Delays eliminated by this NEW THREADLESS COUPLING



National Standard Threadless Coupling Connected

CHIEF! WHY USE SOFT SUCTION?

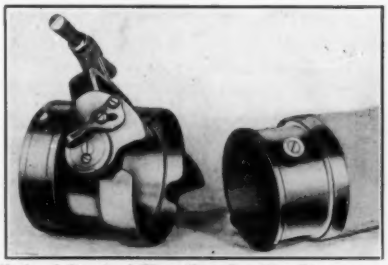
You know the weak points of soft suction as well as its advantages.

You know the superior value of hard suction.

Why not equip your pumper with National Standard Threadless Couplings, and command either hard or soft suction at will? If the soft suction fails, disconnect it and instantly connect up your hard suction. N.S.T.C. make this shift easily possible.

Be prepared for any emergency.

You need no alibi when equipped with National Standard Threadless Couplings.



National Standard Threadless Coupling Disconnected

SAVE TIME, LIVES AND PROPERTY!

Every efficiently managed fire department demands water in the least possible time.

The National Standard Threadless Couplings guarantee quick connection and speedy disconnection in emergencies. They are easily and quickly installed on any Pumper.

Get the jump on the fire with National Standard Threadless Coupling—the speedy shift-connecting unit.

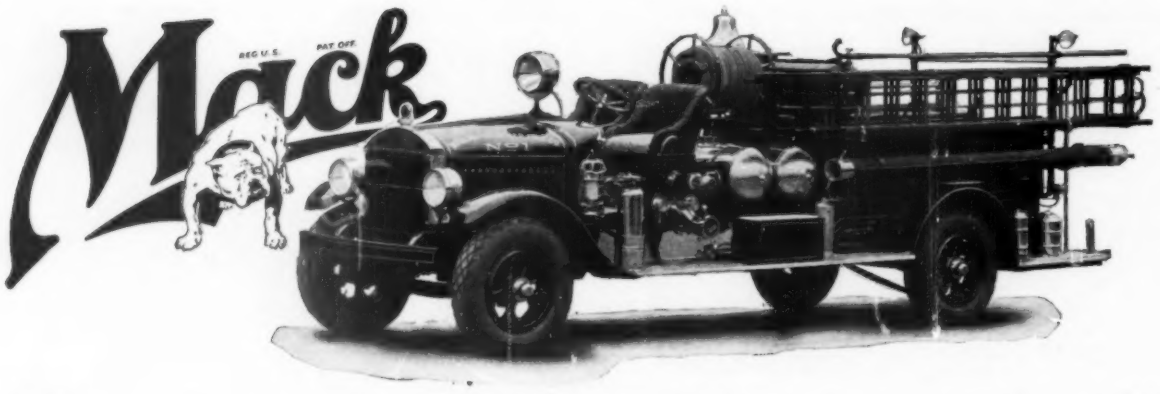
Write for descriptive literature.

Manufactured exclusively under patent rights by

NATIONAL STANDARD THREADLESS COUPLING CORP.

Manufacturers and Distributors of Threadless Couplings for Fire Engines, Oil Tanks and Trucks, Oilhose, etc.

Executive Office: 215-217 Beach 122nd Street,
ROCKAWAY PARK, N. Y.



"Progressive Fire Engineering"

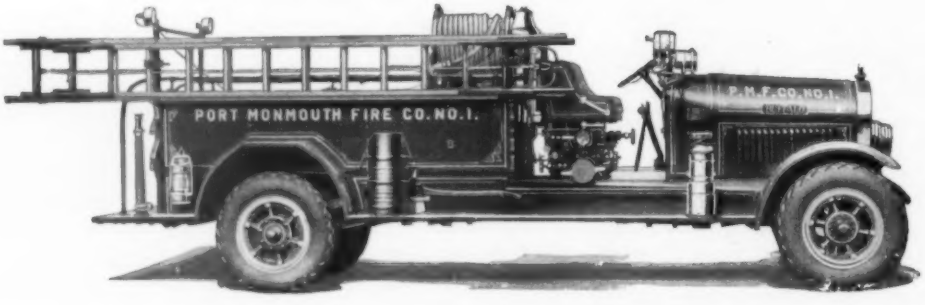
THIS Mack Type 60 — 500 Gallon Triple Combination is manufactured by Mack expressly for small communities and townships. It is built to the same exacting standards and of the same fine materials as its larger brothers, the 750 and 1000 gallon Mack Bulldogs. Mack makes no compromise in quality no matter what the size of the pumper.

The complete line of Mack fire apparatus includes motors of either 4 or 6 cylinders, with pump capacities ranging from 350 to 1000 gallons per minute. Send for complete descriptive literature.

25 Broadway MACK TRUCKS, Inc. New York City

More than one hundred direct MACK factory branches operate under he titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION", "MACK MOTOR TRUCK COMPANY", or "MACK TRUCKS OF CANADA, LTD."

Buffalo Type 50



Speaks For Itself In
Construction — Service — Power

Write for Detailed Specifications

BUFFALO FIRE APPLIANCE CORP.

44 Central Ave., Buffalo, N. Y.

Help Yourself! Free Service! Here's the Combination!

Fire Protection Equipment And Supplies

1 Acid Siphons.
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Theromostatic.
10 Asbestos, Clothing
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Caps, Firemen's.
23 Chains, Non-Skid, Fire Apparatus.
24 Chassis for Fire Apparatus.
25 Chemical Engines and Tanks.
26 Chimney Cleaning Compounds.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers for Chimney Fires.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flare Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.

Just run down the list of equipment and jot down on the coupon below the numbers that indicate the equipment in which you are interested. Then fill out rest of the coupon and mail it to us.

We will then request the leading manufacturers of such equipment to send you descriptive literature and prices direct without any cost to you or obligation whatever.

The manufacturers we notify will gladly do this because they are advertisers and good friends of this publication and want to cooperate with our readers in every way possible in the improvement of their departments. So help yourself! Get what you want!

For Information on Any Equipment Not Listed, Write on This Page or Use Separate Sheet.

55 Hose Clamps.
56 Hose Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pumps.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Primming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
80 Relief Valves.
81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs' Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
91 Sprinkler Head Shut-Offs.
92 Sprinkler Supervisory Service.
93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water.
95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
97 Tarpaulins & Fire Blankets.
98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

TEAR OFF HERE

FIRE ENGINEERING

225 West 34th St., New York City.

As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers:

Nos.....

Nos.....

Nos.....

Date.....

Name.....

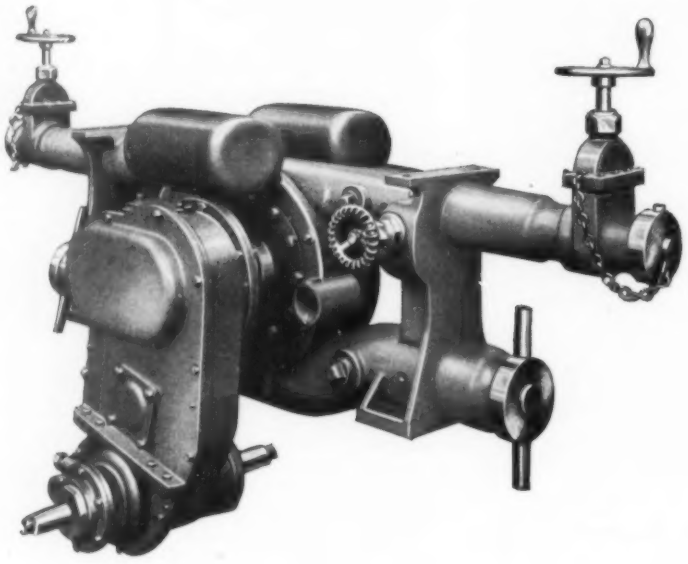
Position.....

Street.....

City and State.....

.....

..... 12-28



UNFAILING

Lots of water and a steady stream, for hours at a time, if necessary—that's what you should expect of a good fire pump. And, that's what you will get if the pump on your equipment is a Waterous. For forty years fire fighters have referred to them as "dependable."

WATEROUS COMPANY

Saint Paul, Minnesota

Also Manufacturers of the "Waterous" Fire Hydrant

Established 1886

Waterous Dependable

ADVERTISING INDEX

Advertising Pays — in Fire Engineering

	PAGE
Ahrens-Fox Fire Engine Co.	1305
American District Telegraph Co.	1309
American-LaFrance and Foamite Corporation.	1308
Bi-Lateral Fire Hose Co.	1337
Blanchard, Arthur H.	1328
Braxmar Co., C. G.	1331
Buffalo Fire Appliance Corp.	1338
Clay, Inc., John H.	1332
Combination Ladder Co.	1332
Darling Valve & Mfg. Co.	1306
Eastman Co., Samuel	1328
Eddy Valve Co.	1328
Erick Electric Siren Co.	1335
Eureka Fire Hose Mfg. Co.	*Back Cover*
Everson-Ross Co.	1332
Fabric Fire Hose Co.	*Inside Back Cover*
Foamite-Childs Corp.	1307
Hahn Motor Truck Co.	1335
Hale Fire Pump Co.	1335
Hendrie & Bolthoff Mfg. & Supply Co.	1335
Information for Buyers	**1339**
International Harvester Co.	1335
Johns-Manville Corp.	1342
Kilsoot Chemical Co.	1331
Mack Trucks, Inc.	1338
Maxim Motor Co.	1335
Morse & Sons, Inc., Andrew J.	1335
National Electric Specialty Co.	1328
National Standard Threadless Coupling Corp.	1337
Northern Fire Apparatus Co.	1310
Nott Co., W. S.	1337
P-B Mfg. Co.	*Front Cover*
Pirsch & Sons Co., Peter	1331
Quaker City Rubber Co.	1337
Rensselaer Valve Co.	1331
S. & M. Lamp Co.	1337
Seagrave Corp.	1303
Southworth Machine Co.	1332
Sterling Siren Fire Alarm Co.	*Inside Front Cover*
Union Water Meter Co.	1328
Waterous Company	1340
Waukesha Motor Co.	1327
Wood & Co., R. D.	1328
Woodhouse Mfg. Co.	1335

When Ordering New Equipment

Patronize the Manufacturers You Find Listed Above

They are leaders in their respective lines and are in position to take the best possible care of your requirements.

The fact that they are using advertising space in FIRE ENGINEERING indicates they want your inquiries and will be glad to submit specifications and prices without placing you under any obligations whatever.

They are ready and anxious to serve you courteously in every way possible. Be sure to write them for complete information when considering new purchases—and place your orders with them.

They are helping us make the paper better by their advertising. You can help them and help us and help yourself by giving them your business. Let's all pull together! All will benefit.

The Publishers

Working together

—*in the fight against fire*

'Way back in the days of hand pumps and bucket brigades, asbestos stepped from among the curiosities on grandmother's what-not and went into the business of fire prevention.

To-day the asbestos roofer is laying fire-safe roofs by the thousand, working constantly against one of the major causes of the spread of fire.

JOHNS-MANVILLE CORP., 292 Madison Ave. at 41st St., New York
Branches in all large cities. For Canada: Canadian Johns-Manville Co., Ltd., Toronto

Asbestos and its allied products
INSULATION
BRAKE LININGS
ROOFINGS
PACKINGS
CEMENTS
FIRE PREVENTION PRODUCTS

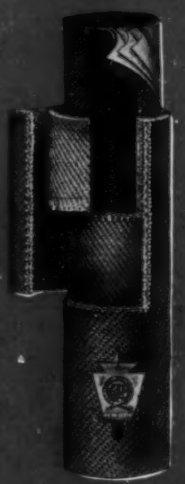
JOHNS-MANVILLE
Asbestos Roofings

An Unusual Advertisement —worth reading.

An Unusual Hose —worth using.

FIRE HOSE

MADE LIKE AN AUTOMOBILE TIRE
IN TWO PARTS INNER TUBE *and* OUTER JACKET



"Fabric" Features:

Separable Inner Tube

—lasts longer than same quality tube cemented to the fabric because it is in complete repose when hose is not in service.

Will Not Slide or Buckle

—the diameter of the tube is reinforced in such a way as to eliminate it.

"Fabric" Features:

A Wax and Gum

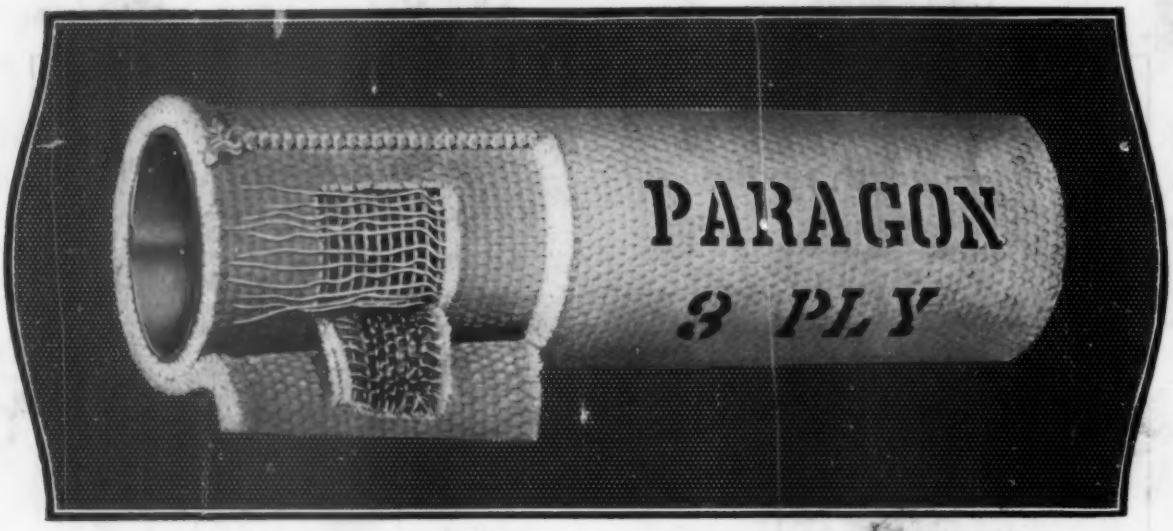
treated fabric jacket—absolutely waterproofed by a special method. Cannot mildew or rot.

Other New Features—

The strands are "cabled" by a new process. The Durability of Fabric Hose is phenomenal.

FABRIC FIRE HOSE CO.
NEW YORK

HOSE facts of interest to every buyer of fire hose will be found in the interesting illustrated booklet issued by the Fabric Fire Hose Co., New York, telling not only why Fabric Wax and Para Gum Treated Fire Hose is the most practical and efficient hose for you to use, but explaining the actual details of its manufacture so that you know just what you are buying and why it is superior. Write for it—Fabric Fire Hose Co., 9-15 Park Place, New York.



Increased Economy in Fire Department Costs—

Records of fire departments in many of the largest cities throughout the country prove conclusively that the adoption of Paragon Fire Hose as standard equipment has effected great economies.

Unusual strength and dependability — that's what the special three-ply construction and the high quality of materials used in the manufacture of Paragon Hose means to you.

When you buy fire hose you make an investment in efficient, dependable fire protection. Be sure that the hose you buy is the BEST.

For over fifty years Paragon and the other famous brands of Eureka manufacture have been the recognized standards of fire hose quality and service.

We shall be glad to go over your requirements with you — and to point out how Paragon Fire Hose will help you to reduce the expenses of your department.

EUREKA FIRE HOSE MANUFACTURING CO.

50 CHURCH STREET **NEW YORK CITY**

ATLANTA
BOSTON
CHICAGO
COLUMBUS
DALLAS
DENVER
DES MOINES
DETROIT
KANSAS CITY
LOS ANGELES
MINNEAPOLIS
PHILADELPHIA
PORTLAND
SYRACUSE

TRADE MARK

FIRE ENGINEERING, DECEMBER 28, 1927
PRINTED BY THE WILLIAMS PRESS, ALBANY, N. Y.